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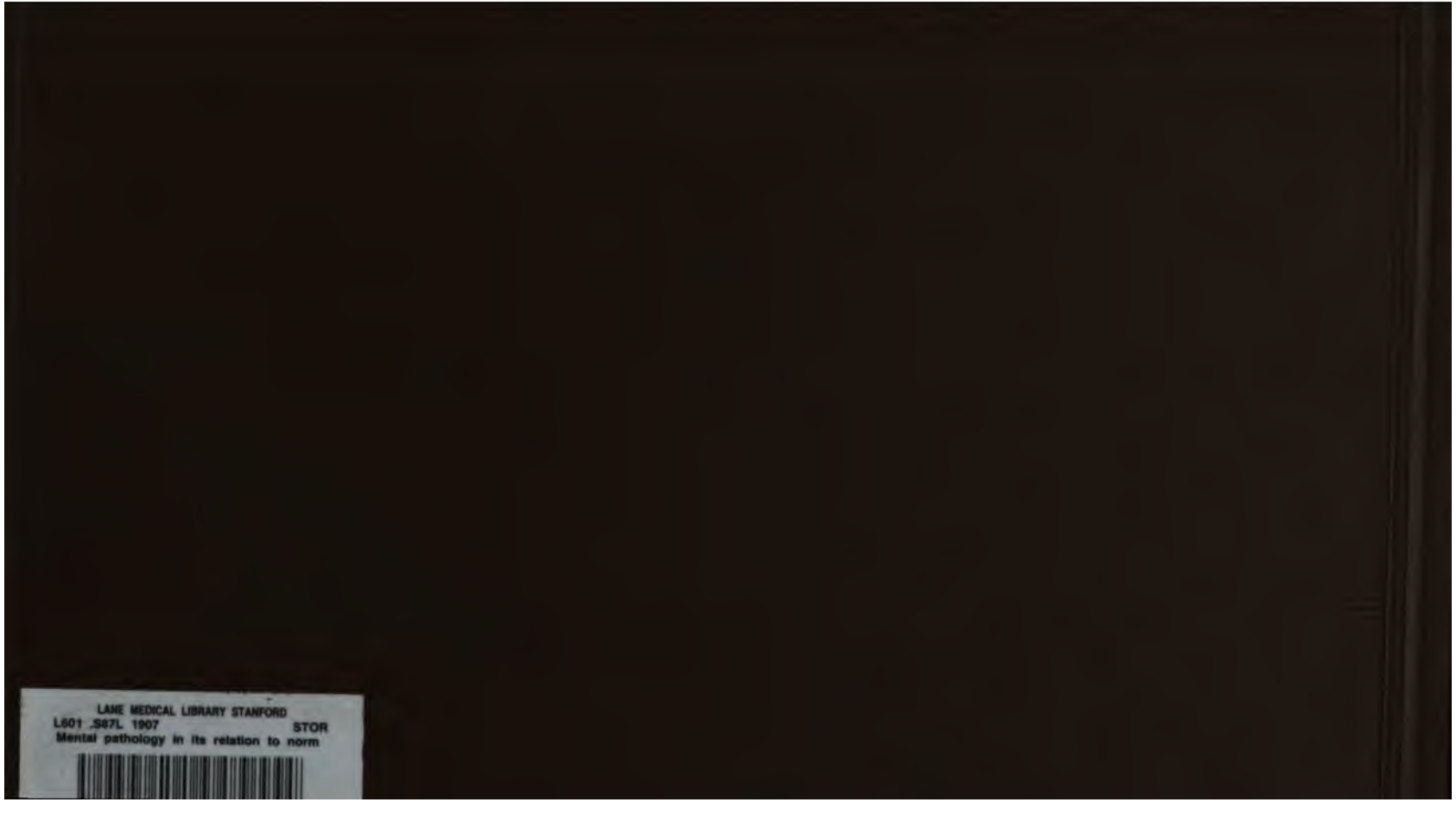
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MENTAL PATHOLOGY

IN ITS RELATION TO

NORMAL PSYCHOLOGY

A COURSE OF LECTURES DELIVERED IN THE UNIVERSITY OF LEIPZIG

BY

GUSTAV STÖRRING, DR. PHIL. ET MED.

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1907

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1907

AUTHOR'S DEDICATION

TO MY REVERED TEACHER

WILHELM WUNDT

AS A TOKEN OF PROFOUND GRATITUDE

G. STÖRRING.

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TRANSLATOR'S PREFACE

THE original title of this book, fully translated, runs as follows: "Lectures on Mental Pathology in its significance for Normal Psychology, together with the Psychological Fundamentals of the Theory of Knowledge." Several years ago I heard Dr. Störring deliver these lectures at Leipzig; and when I came to teach psychology, and found myself hampered by the lack of any English work on mental pathology to which I might refer my students without embogging them in a morass of clinical details, it occurred to me that they might find such a translation as this useful. The practical test of its usefulness I must, as it happens, leave to others, to whom I apologize for the roughness of the language and for the many Teutonisms which still remain unexcised. I believe the meaning to be accurately, though not always literally, rendered; were the translation more literal, it would be too bald and full of repetitions to suit English ears. As for the substance, to criticize his original is not a translator's province. I do not agree with all of Dr. Störring's conclusions, but he seems to me to offer the student a judicious selection of cases and, as a rule, to exercise a cautiousness in interpretation that may serve as a wholesome corrective of the extravagances characteristic of much recent amateur work on abnormal mentality.

My thanks are due to several friends for assistance; more especially to Dr. Störring himself, and to Dr. W. J. Dodds, Inspector of Asylums in Cape Colony.

Whilst keeping the author's bibliography at the end of the volume, I have thought it more convenient to give the references in footnotes as well; and, so far as I was able, I have stated the pages on which the passages referred to will be found. A few other notes, added by me, are marked *Tr.*

THOMAS LOVEDAY.

SHEFFIELD, *7 October*, 1907.

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PATHOLOGY AND PSYCHOLOGY

FIRST LECTURE

Definitions of Psychology and of Mental Pathology—General sketch of the significance of Mental Pathology for Psychology—Significance of Anatomy and Physiology for psychological investigations—Psychophysical Parallelism.

THE subject of this course of lectures is the significance of mental pathology for normal psychology. It will be convenient if I begin by explaining what I understand by psychology and mental pathology, and then give a general sketch of the bearing of the latter on the former.

The subject-matter of psychology has been variously stated. Earlier writers used to call psychology *the science of the soul*. But that is an undesirable definition, because it sets a metaphysical assertion at the head of an empirical science. It asserts the existence of the soul as substrate or bearer of conscious processes; but the existence of such a substrate is frequently disputed. For this reason we do better to define psychology as *the science of conscious processes*. Every one knows what is meant by conscious processes—our thoughts, our feelings, our passions, wishes, desires, and decisions. They are usually all brought under the three headings of ideas, feelings, and acts of will; but whether these are the fundamental psychical phenomena we need not discuss at present. Notice that consciousness is not a separate magnitude in addition to these processes, but is a common property of them all, and of so elementary a character that it cannot be, strictly speaking, defined, but only indicated.

Objection has been taken to this definition of psychology on the ground that the science must deal, not only with conscious processes, but also with certain unconscious processes. The term "unconscious idea" is generally used in this connection.

Obviously the term is ill-chosen, since by " idea " is commonly meant a definite kind of conscious process, but at the same time a purely terminological refutation does not excuse us from paying regard to the facts. We must ask what is really meant by the term " unconscious ideas." Those who maintain their existence assert that the causal chain of connexion between our conscious processes includes links which are not conscious. These unconscious links are by some authors regarded as psychical factors, whilst others look on them as purely physiological. Whether such processes exist at all we shall have to discuss at a later stage of our inquiry; let us for the moment assume that they do. It is supposed that the treatment of them will be excluded from the province of psychology by our definition. But a closer view of their relation to conscious processes will show us that this is not the case. If psychology has to deal with conscious processes, it must attempt to analyse them and to ascertain the laws of their causal connection. Now *ex hypothesi* conscious processes do not form a closed series of causes and effects, but unconscious links are interpolated. Therefore in the attempt to discover the causal relations of the conscious processes with which we have to deal we shall be forced to investigate the connected unconscious processes. The latter are, of course, on this view not subject-matter of psychology in the same sense as conscious processes; but to that, I think, no one can object.

Psychology, then, is the science of conscious processes. It has to analyse these processes—that is, to discover their elements—and also to ascertain the laws both of the combination or the fusion and of the succession of the elements.

I proceed next to the definition of Mental Pathology. It is *the science of morbid mental processes.* It is usually divided into a general part and a special part, and an example of the difference will make clear which of the two parts concerns us in our present inquiry. Melancholic depression occurs in very different kinds of mental disease. Sometimes it constitutes an independent disease-picture (melancholia); it may occur in the course of general paralysis or softening of the brain; again it is found in cases of chronic paranoia; and lastly in what is called circular insanity, a mental disease in which states of maniacal excitement alternate regularly with states of abnormal melancholy. So it is only a *symptom* of mental disorder. Now in its general part mental pathology treats of the symptoms of mental disorders,

describing the symptoms and ascertaining their effects on mental life. In other words, the manner of treatment is purely psychological, and this general part is therefore usually divided into the doctrines of anomalies of ideation, of feeling, and of will. The business of the special part, on the other hand, is to sketch disease-pictures. The interest there is not psychological, but wholly medicinal, concerned with prognosis and therapeusis; the individual symptoms which occur in the course of a disease are united with a single typical picture. Modern textbooks of psychiatry preface the special treatment by the general, since a psychological treatment of the symptoms is necessary to the understanding of the disease-pictures. It is clear that in attempting to determine the significance of mental pathology for psychology we are concerned only with the general part of the former science.

The two sciences stand in a reciprocal relation to one another; each has significance for the other. Our concern is with the significance of mental pathology for psychology, and it will be helpful if I show you at once in a general way what the character of its significance is. It leads me to speak of a psycho-pathological method in psychology, and, in order to put this notion in the proper light, I must say a word or two about psychological methods generally.

Metaphysical psychology started, as its name indicates, from general metaphysical conceptions which it forced upon mental life; its attitude was one of speculative construction rather than of simple observation. Further, its interests were extremely limited; nothing was an object of scientific inquiry which could not be connected with the main problem of determining the nature of the soul. This metaphysical tendency in psychology may nowadays be regarded as obsolete. It was superseded by the *empirical psychology of introspection*, which starts from the particular facts of mental life and tries to analyse them and to discover uniformities of combination and succession between them. The method used is that of introspection or self-observation. An interesting criticism of this method is to be found in AUGUSTE COMTE. "As for observing intellectual phenomena at the time of their actual presence, that," he says, "is a manifest impossibility. The thinker cannot divide himself into two, of whom one reasons whilst the other observes him reason. The organ observed and the *organ* observing being, in this case,

identical, how could observation take place? This pretended psychological method is then radically null and void. And how entirely contradictory the modes of procedure to which we are simultaneously led by it! On the one hand we are advised to isolate ourselves as far as possible from every external perception, and especially from all intellectual work; for if we were to busy ourselves even with the simplest calculation, what would become of internal observation? On the other hand, after having with the utmost care attained this state of intellectual slumber, we must begin to contemplate the operations going on in our mind when nothing is taking place there. Our descendants will doubtless see such pretensions some day represented on the stage." * F. A. LANGE has expressed himself in a similar way.

Here, you see, the possibility of observing mental phenomena is denied, because such observation is taken to presuppose a self-reduplication that is naturally impossible. But of course we will not grant that it does so. Self-observation does not involve self-reduplication. No doubt we may put the facts of self-observation in the words: "*I* observe *myself*," and it appears as if the subject and the object of the observation were identical. But, as we shall see later, the self is not something simple—it is complex. The actual state of affairs in self-observation is simply this, that attention is directed to a psychical process during its course. It involves the simultaneity of two psychical processes; but that in itself implies no contradiction. At the same time it is true that the direction of attention to psychical processes during their course may modify them; every one knows that an emotion loses force the more attention is concentrated upon it. The usual way out of this difficulty is to say that even if observation of mental phenomena is impossible when they are actually present, still we are conscious of them at the time and can make them objects of observation as soon as they are over: we cannot observe an emotion while it is present, but attention does not impair a reproduced emotion. Surely it is very unfortunate if we must thus renounce the attempt to apprehend in full clearness and distinctness, by means of concentrated attention, a mental phenomenon which we wish to observe, and which perhaps occurs but rarely in the play of our mental processes; and I maintain that *we need not entirely abandon the use of attention for this purpose. It all depends what direction we give to it.* If we concen-

* *Cours de Philosophie positive*, I, pp. 34, ff. [The translation is indebted to JAMES, *Principles of Psychology*, I, p. 182.—*Tr.*]

trate it in the direction in which it is already active when given mental processes begin to run their course, then their subsequent course is not disturbed, but they become all the more distinct. Thus the intensity of an emotion is certainly not diminished if attention is concentrated on the object, the idea of which provokes the emotion.

It often happens, however, that we have not time to assist the observation of mental phenomena in this way; and, besides that, the introspective method suffers from two other defects. In the first place the occurrence of suitable phenomena is left to the mercy of chance; and, secondly, it is in any case difficult to exclude altogether the influence of preconceived opinions upon our apprehension of the facts. The position of psychological research is therefore much improved if it calls *experiment* to its aid. When the mental processes to be investigated are produced experimentally, an experimenter arousing them by physical action on an observer, it is possible for the observer to *direct his attention upon the stimulus*, and he may be forewarned of the moment of its occurrence by a signal preceding it at a prearranged interval. In this way the physiological conditions are rendered more favourable for perception, since the sense-organs are properly accommodated to the stimulus; and, furthermore, there results on the psychical side a narrowing of consciousness which cannot but make the mental phenomenon more prominent and distinct than is possible when a similar process occurs by chance. In this way the set of attention is able to bring about a suitable physiological and psychical preparation for the stimulus.

It has been objected that attention plays the same part here as in subjective introspection. As we do not admit that its effect is injurious even there, our question will be: What is its direction? It is directed upon the external stimulus. But thus directed it must lead to greater clearness and distinctness of the mental phenomena to be observed, because the direction is just that which it normally takes when they run their course in the ordinary way, and the physiological and psychical conditions are more favourable than usually.

A second advantage of the experimental production of psychical processes is that we are enabled to *repeat* them as often as we wish, and when we have to deal with pretty complex psychical magnitudes, repetition is naturally a very great assistance towards clear and complete apprehension of them.

such cases experiment meets with difficulties. At this point the study of the pathology of mental life must come in to assist, for in pathological cases nature makes experiments for us, and they affect complex psychical phenomena far more than simple, since the relatively complex are of more frequent occurrence.

When ascertaining the normal function of bodily organs, we are not content in medicine with mere observation and with experiment; the pathology of the organs is an indispensable assistance. Nothing, therefore, is more natural than that in ascertaining normal *mental* functions, mere observation should again be supplemented not only by experiments which *we* make, but also by experiments which *nature* makes for us, that is, by pathological cases.

Since nature in these cases accomplishes what normal psychology achieves by experiment, the observation of morbid phenomena has in mental pathology the value of experiment in normal psychology. We must, therefore, carefully distinguish these natural experiments from experiments which *we* make on the insane.

Of such pathological cases those are of course the most valuable, in which only a single constituent of mental life is primarily modified. We have then a complete analogy to our own experiments. The *modification of a single constituent* teaches us—

(1) What effects that constituent helps to produce jointly with other causes—for the production of an effect always depends on the joint action of several causes; and
(2) What contribution it makes towards the production of the effect;

and often it enables us to notice more easily what in normal mental life remains comparatively obscure. (This is possible when the intensity of the modified constituent is increased.) A special case of the modification of a single constituent occurs when the constituent is missing altogether. Such cases are particularly helpful to analysis, for comparison with normal phenomena frequently leads us to recognize the presence of the same constituent in a similar complex in normal minds.

Next in value for normal psychology after the primary modification of a single constituent of mental life comes the *modification of a limited number of constituents*. Their different combinations in different cases enable us to argue to their separate effects.

Furthermore, the use of experiment makes it possible to *exclude entirely the influence of preconceived opinions* on our apprehension of the facts; for the experimenter and the observer may be different persons, and the observer, of course, need not know anything about the experimenter's intentions.

These advantages of experiment over introspection make towards clear and distinct ascertainment of the psychical phenomenon under investigation, and such clearness and distinctness form the fundamental condition for analysis of the process and for determination of the conditions on which it depends.

It is usual to distinguish subjective and objective analysis of mental processes. When the process concerned has been clearly and distinctly apprehended, the subsequent subjective analysis proceeds wholly by introspection, whilst objective analysis is carried out experimentally. In experimenting we are able to vary at will the physical stimulus which evokes the mental phenomenon, and a variation of the latter follows. In the case of feelings and voluntary acts a further aid to objective analysis is given us, in that such processes have definite bodily concomitants or consequences. Feelings are accompanied by definite changes of respiration, of pulse-beat, of blood-flow to different parts of the body, and of muscular tension; external acts of will are characterized by definite bodily movements. These bodily concomitants and consequences we submit to experimental examination, and from them we try to argue back to the connected mental processes.

A word finally on the mode of ascertaining the conditions on which a mental process depends. We must distinguish dependence on physical processes and dependence on other psychical processes. The possibility of determining the former by experiment needs no further discussion. In the attempt to determine relations of psychical dependence experiment assists us chiefly by enabling us to accumulate any number of qualitatively different experiences. I refer you to the experimental work on association and recognition.

The possibility of psychological experiment depends on the condition that a given psychical process stands in a relation of dependence to a physical process, by which it can therefore be evoked. Of course it is not only feelings and acts of will that are thus dependent on physical processes; the same is true of sensations and ideas. But naturally the more complex a process is, the less easily can we evoke it by physical stimulation, and in

such cases experiment meets with difficulties. At this point the study of the pathology of mental life must come in to assist, for in pathological cases nature makes experiments for us, and they affect complex psychical phenomena far more than simple, since the relatively complex are of more frequent occurrence.

When ascertaining the normal function of bodily organs, we are not content in medicine with mere observation and with experiment; the pathology of the organs is an indispensable assistance. Nothing, therefore, is more natural than that in ascertaining normal *mental* functions, mere observation should again be supplemented not only by experiments which *we* make, but also by experiments which *nature* makes for us, that is, by pathological cases.

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Next in value for normal psychology after the primary modification of a single constituent of mental life comes the *modification of a limited number of constituents*. Their different combinations in different cases enable us to argue to their separate effects.

A second way in which pathological phenomena help normal psychology is by affording *means of verifying psychological theories.* It is plain that the more simply a psychological theory succeeds in explaining these phenomena, the more acceptable it will be, and so they act as a touchstone of such theories. If you reflect that in complicated fields of research different theories often seem to possess almost equal probability, you will be able to gauge the importance of obtaining means of verification, criteria of the correctness of a theory.

Lastly, mental pathology has significance for normal psychology because the study of abnormal cases determines the *mode of stating new problems.* Many pathological cases, far from explaining facts of normal psychology, themselves demand a psychological explanation. Yet they are not without value for psychology. The statement of fertile problems is one of the most essential conditions of scientific progress, and such problems are provided for us in great numbers by the psychology of mental life.

That, in spite of their far-reaching importance for psychology, pathological facts have up to the present been little utilized in that science, depends on the accident that pathologists have not been psychologists enough, nor psychologists sufficiently versed in pathology.

Having thus explained what I mean by psychology and by mental pathology, and having shown on what characters of the latter its importance for the psychologist rests, I will now proceed to determine the relation of anatomy and physiology to the subject-matter of our investigation.

In the first place I must at this point determine shortly, and so far as it bears on our purpose, the relation of psychical to physiological processes.

During the period of exact experimentation in psychology general recognition has been won by the principle that physical, i.e. physiological, processes run parallel to all mental processes, and that the two stand in such a reciprocal functional relation that no modification of the one is possible without corresponding modification of the other.

A second hypothesis also has proved itself of similar value in psychological research, namely, that the physiological correlates of psychical processes form a closed causal series. In support of this second principle we may, besides its practical usefulness,

urge, as WUNDT* does, the fundamental rule of the logic of scientific method, that "only homogeneous facts can be brought into an intelligible system of conditions and consequences, because in general only such facts admit a common measure and can be arranged under common laws."

We must next inquire what significance the anatomical-physiological point of view has in our sphere. There are mental pathologists who would solve the riddle of mental life on the lines of anatomy and physiology. But it is evident that even perfect insight into the causal connexion of the physiological processes of the cortex which are parallel to psychical processes could not disclose to us the nature of the corresponding psychical processes. Suppose we knew all the anatomical paths and all the anatomical centres traversed by a certain excitation during the occurrence of a psychical process, that would not tell us what it is that takes place in those paths; we should not know the different physiological processes which occur in them, and much less the corresponding psychical processes. And granted we did know the nature and connexions of the physiological processes, even that would not give us the psychical processes.

Other authors who equally overestimate the importance of the anatomical-physiological standpoint, though they do not go so far as absolutely to ignore the mental factor, imagine that they must not rest content with a perfectly clear analysis of a mental process even when on the physiological side there is nothing to offer but vague constructions. This means that they regard hypothetical constructions of a physiological kind as a better scientific explanation than a fact which *ex hypothesi* is absolutely ascertainable by observations or experiments, as if what is clearly ascertained on the psychical side had less factual value than what is ascertained on the physiological side—less even than purely hypothetical physiological constructions. This standpoint is opposed to the general principles of scientific method. As a matter of fact we are usually better off from the psychological point of view than from the anatomical-physiological; for example, it is to psychology that we owe our knowledge of the most important laws governing the succession of our ideas, whilst the nature of the corresponding physiological processes remains quite in the dark.

* *Vorlesungen über Menschen- und Tierseele*, 3rd ed., pp. 6–7. [cf. *Lectures on Human and Animal Psychology* (translated from the 2nd German edition), p. 6.—*Tr.*]

It is, however, just as mistaken to adopt the psychological point of view exclusively. In the first place, psychological experiments necessarily involve physiological factors which enter into the complex cause of the result, as, for example, when we arrange a physical stimulus and thus produce a sensation. And, secondly, there are cases in which we can effect a psychical analysis only by adducing the anatomical and physiological facts. This happens, for example, in the case of pathological "twilight-states"; psychological consideration alone cannot teach us that at the root of the altered state of consciousness there lies an alteration of organic sensibility, whilst, as we shall see later, this relation of dependence is detected by aid of anatomical and physiological considerations. Here we have a psychical state which does not admit of trustworthy analysis from the psychical side, because the organic sensations, a change of which is concerned, do not stand in the focal point of consciousness.

Again, we need physiology to supplement our knowledge when in the course of a psycho-physiological process one constituent or several remain unconscious or unnoticed. The right to supplement psychological research in this way we draw from the principles which we previously laid down regarding the general relation of psychical to physiological processes. We shall frequently have occasion to return to this point.

My decision, then, on the question whether in investigating psychical processes we should prefer the physiological or the psychological point of view, is that our pursuit must be chiefly conducted on the psychical side, but that analysis is often assisted by taking physiological factors into account and is sometimes impossible unless we do so.

SECOND LECTURE

Plan of these lectures—Subdivision of the first part, the pathology of intellectual functions so far as significant for normal psychology—The nature of Feeling, Emotion, and Mood.

IN my first lecture I defined psychology and mental pathology, and gave you a general sketch of the significance of the latter science for the former, and I dealt with certain general questions regarding the principles of the methods of research in those sciences. I may now pass on to a division of the matter of our inquiry. I intend to treat of the bearing of mental pathology on psychology in three parts. The first will deal from our special point of view with the pathology of the intellectual functions, the second with the pathology of affective processes, and the third with that of processes of will.

But if I am thus to begin with the pathology of the intellectual functions, it will, I think, be advantageous as a preliminary measure, in view of the great importance of affective processes for intellectual phenomena, to anticipate certain general determinations of the nature of Feeling, Emotion, and Mood.

Of the anomalies of intellectual functions the first to engage our attention will be those of perceptual process. Under this heading we shall have to treat of hallucinations, pseudo-hallucinations, and illusions. The comparison of hallucinations and pseudo-hallucinations will lead us to certain conclusions regarding the analysis of the consciousness of objectivity, while the discussion of illusions will reveal to us certain conditions of the process of assimilation.

Before proceeding to speak of anomalies of ideation and the train of ideas I propose to discuss a body of pathological data which ought really to be divided between the lectures on perceptual and those on ideational abnormalities, but which I do not think it desirable to break up because of its importance for the solution of a single problem—the question, namely, whether or not there are separate centres for the correlates of sensational and of ideational processes.

to those which occur in emotions, and these similar bodily changes, we are told, superinduce psychically similar emotions. For example, the taking of alcohol produces organic changes such as occur as concomitants of the emotion of joy; the frequency and the strength of the heart-beat increase, the capillaries become dilated, voluntary innervation is strengthened, and there is a greater flow of blood to the brain. Now if we bring about these bodily changes by taking alcohol, there always results an emotion of joy, and LANGE emphasizes the point that this effect occurs without needing the intermediation of " the mind " acting upon the vaso-motor centres. A similar change of mood may be brought about by opium, hashish, and morphia, whilst ipecacuanha produces a mood of depression, and bromine a condition of apathy. I will add, on my own account, that in cases of mental disease insane ideas of an erotic character generally pass into the background when patients are exposed to the action of bromine, probably because it exercises a relaxing influence on the vaso-motor functions.

Morbid disturbances of the vaso-motor system are said to afford further evidence in support of the new hypothesis, of the same kind as that provided by the artificial action of drugs. According to the nature of the malady a patient suffers from anxiety or from maniacal excitement, and that without being able to give any reason for his anxiety or for his violent joy.

LANGE'S conclusion then is as follows: If the bodily changes which occur in certain emotions either are artificially aroused by means of drugs or result from disease, there occur psychical phenomena which are not in any way distinguishable from ordinary emotions aroused by perceptions and ideas. Therefore emotions are nothing but sensations of these bodily changes, that is, they are *effects* of these changes, and not conversely the bodily changes effects of the emotions.

If now we are to define our position in regard to LANGE'S development of his view, we must first of all say generally that the facts adduced are correct, but the conclusion drawn from them goes too far. With regard to the facts themselves, we cannot but admit that artificial and morbid emotional states are in quality identical with normal emotions. In maniacal outbreaks of anger we see both the train of ideas and actions influenced by the change of condition in precisely the same way as normally happens in an outbreak of anger excited by ideas. Again, intelligent neurasthenic patients, who suffer from attacks

of morbid anxiety in which they are afraid without being afraid *of anything*, affirm that these states are of the same quality as normal states of anxiety which are referred to an ideally represented object as their cause. In these cases, then, we find emotional states of the quality of normal emotions, *and yet they are not caused by an idea to which a feeling becomes attached;* the patients have, e.g., anxiety without knowing what makes them anxious.

This is the only order of facts adduced by the authors named in support of the existence of emotions not dependent on ideas; but the following facts are still more cogent. In many cases of morbid emotions we can show with certainty that ideas on which the emotions seem to depend are really of a secondary character relatively to them. Thus we sometimes find that patients suffering from slight melancholy are for weeks and months at a time tormented by morbid anxiety and melancholic ideas in the morning, whilst in the evening they are free from both, and wonder how they come by such ideas. Next day the process repeats itself; and so on. Why should it always be in the morning, and only in the morning, that these ideas occur month after month? In such cases we must hold organic factors responsible for the anxiety, and similarly too in circular or alternating insanity, where melancholic and maniacal phases regularly succeed one another. That the intellectual phenomena are of a secondary character is further evidenced by the fact which psychiatrical experience teaches us, that *a change of situation, which renders the particular thoughts groundless, does not abolish the anxiety; what happens is merely that new ideas take the place of the old ones, and so in a secondary way provide an object for the emotion.*

These, then, are the facts; but it does not follow from them that emotions are nothing but sensations of bodily changes,—that emotions with their sharply pronounced affective character can be reduced to mere organic sensations. We shall see that the *affective* character of artificial or morbid emotions must be due to affective elements which combine with the organic sensations aroused by bodily changes. There is nothing in these abnormal emotions to induce us to relate their affective character more directly to the bodily changes. Such cases prove only that bodily changes cause emotions; they do not in any way prove that emotions are nothing but sensations of those changes. LANGE and his supporters actually reduce emotions and feelings to sensations; they regard them as merely complex sensations of a

particular kind. But obviously *this is putting too much upon the principle of parsimony in the use of explanatory principles.* Sensations and feelings as *given* psychically are markedly *different in quality;* a mere indication of the abstract possibility that a magnitude of new quality may arise from, say, the fusion of a complex of organic sensations is not enough to demonstrate that feelings are reducible to sensations. That is to commit an error in method, and therefore I do not think it necessary to prove the unreality of this bare possibility. Besides, such a proof is not so easy to set about; for example, I cannot regard ALFRED LEHMANN'S * arguments against LANGE as cogent.

Our view, then, is that the bodily changes which occur in these cases cause the emotions by arousing organic sensations and accompanying feeling-tones. Further, as the organic sensations form with the affective elements a qualitatively unitary state, we say that all these psychical magnitudes are *fused* in the emotional state.

I should mention that WILLIAM JAMES has attempted to get beyond the bare possibility of which I spoke; but I cannot regard the attempt as happy. "If we fancy some strong emotion," he writes, "and then try to abstract from our consciousness of it all the feelings of its bodily symptoms, we find we have nothing left behind. . . . What kind of an emotion of fear would be left if the feeling neither of quickened heart-beats nor of shallow breathing, neither of trembling lips nor of weakened limbs, neither of goose-flesh nor of visceral stirrings were present, it is quite impossible for me to think." †

The task which JAMES proposes in this passage seems to me impracticable. It is not possible to peel away the whole mass of organic sensations, which have become fused into the product that constitutes the emotion, in such purity and clearness as to justify one in saying: "Now I have picked out every single organic sensation; taking them all together, I see that nothing else remains of the emotional state." Besides, so far as I can manage to abstract single sensations out of an emotional state, I find them to be accompanied by affective tones which do not admit of further analysis. Another attempt in the same direction, by MÜNSTERBERG, I have shown to be unsuccessful in my essay on the "Influence of Feelings on Ideas and Trains of Ideas." ‡

* *Hauptgesetze des menschlichen Gefühlslebens*, pp. 114 ff.
† *Principles of Psychology*, Vol. I, pp. 451–2.
‡ WUNDT'S *Philosophische Studien*, Bd. 12.

We hold to our point, then, that feelings are not reducible to sensations, and that bodily changes succeed in producing emotions in the cases discussed only by arousing organic sensations which are accompanied by feelings. Now although the fact that emotions which occur without the co-operation of perceptions and ideas are identical in quality with normal emotions does not carry the consequence that emotions are nothing more than sensations of bodily changes, yet it does carry another important consequence, namely, that *in normal emotions also the psychical results of the bodily changes, that is, organic sensations and organic feelings, are the factors that determine their specific character.*

In normal emotions the whole process is introduced by a perception or an idea. Now if we allow that organic sensations are accompanied by affective elements, then we must also have recourse to such elements in the case of feelings that are combined with perceptions and ideas, and their relation to the perceptions and ideas will resemble the relation of the feelings accompanying organic sensations to these sensations. (In one respect we shall have to supplement this statement later on.) But if in these cases we have recourse to such affective elements, then evidently we must distinguish primary and secondary affective elements in an emotional state. Thus we can give a second and negative formulation to the conclusion we drew just now as to the importance of organic sensations and organic feelings in a normal emotion; namely, that *in a normal emotional state it is not the primary feelings that determine the character of the emotion*, for, if it were, emotions which occur without primary feelings would not seem identical with normal emotions.

We have seen, then, that feelings cannot be reduced to sensations, that emotions represent fusions of organic sensations and affective elements, and that in artificial and pathological cases these are their sole constituents, whilst in the normal emotion there are also present primary affective elements, which, however, do not determine its character.

II. The next problem is *to determine the relation of emotions to what are called "simple feelings."* The first difference between them to strike the mind is one which has led many authors to say that emotions are merely strong feelings. Against this view you might be inclined to cite the importance of organic sensations for emotions. But you must notice that even what are called "simple feelings" induce bodily changes just as emo-

tions do, changes which can be measured with some accuracy by the plethysmograph, pneumatograph, sphygmograph, dynamometer, and other methods; so that *in "simple feelings" themselves we must distinguish the primary affective elements from the consequences of organic change which become combined with them.* But although organic sensations and organic feelings do enter into "simple feelings," still the concomitant bodily phenomena are so weak that the intensity of the sensations and affective tones they provoke plays but a small part in the whole phenomenon, whilst, as we said, in emotions these form the principal constituents. Further, it may happen that the bodily changes are of such slight intensity as to arouse no sensation at all. *So emotions differ from simple feelings in two respects: firstly, the relative intensity in the total effect of organic sensations and organic feelings on the one hand and primary affective tones on the other is different; and, secondly, qualitative differences also exist, since certain organic sensations which are present in emotions do not occur in feelings, or it may be merely because organic sensations are in "simple feelings" disproportionately dim.* Here we see too that what are usually regarded as simple feelings are not really simple feelings or affective elements, but that simple feelings represent mere abstractions from more concrete states.

III. Having determined the character of emotions and the relation to them of simple feelings so-called, it remains for us to fix the relation of moods to emotional states.

Some writers have given, as the mark distinguishing moods from emotions, consciousness of the exciting cause, which is supposed to be present in emotions, but absent or obscure in moods. After what we have said about morbid emotions, it is impossible for us to recognize this difference. Next they will point, perhaps, to the more rapid rise and fall of emotion, its shorter duration and greater height of excitement. But in many cases of mental disease we find a rapid rise and fall of mood, and no one ceases to call the state a mood for that reason. It is still called a mood because of *the comparatively slight excitement and the comparatively long duration*, and these are to my mind characteristic marks of difference. From this it follows, of course, that in particular cases one may be in doubt whether to speak of an emotion or of a mood.

THIRD LECTURE

Preliminary definition of Hallucinations—A general sketch of their nature—Conditions that strengthen the disposition to them—Auditory hallucinations: "audible thinking" and "double thinking."

IN the last lecture we anticipated certain points which belong to the theory of affective states. We may now turn at last to the pathology of the intellectual functions, beginning with *Hallucinations*. First of all we must make clear to ourselves what this term means. However, I will not start with a ready-made definition of my own, but rather with a statement of current views on the subject, which will provide us with a preliminary definition; and then I propose to give you a general sketch of the nature of hallucinations.

According to ESQUIROL'S definition, which has been widely accepted, an "hallucinant" is one "qui ait *la conviction intime d'une sensation actuellement perçue* lorsque nul object extérieur propre à exciter cette sensation n'est à portée des sens" *; and similarly GRIESINGER regards hallucinations as "subjective sense-images which are projected outwards and acquire apparent objectivity and reality." †

Both writers contrast hallucinations with *illusions*, which are, according to them, deceptions of sense due to falsification of actual perception by supervenient subjective elements. On this view, then, hallucinations and illusions alike are deceptions of sense; they both fall within the sphere of sense-perception; and this differentiates them from deceptions or delusions of judgment. There appears to be actual real sensation; as a matter of fact, there are only subjective sense-images.

All the same, there are some writers—for instance, GRASHEY ‡—who do regard them as delusions of judgment, but the incorrectness of this view is easily seen when an illusion or hallucination is combined with a false judgment; for if you ask, Where pre-

* *Des maladies mentales*, I. p. 80.

† *Pathologie und Therapie der psychischen Krankheiten*, 2nd ed., p. 85.

‡ *Über Hallucinationen* (*Münchener mediz. Wochenschrift*, 1893).

cisely does the anomaly lie, in the function of judgment or in that of perception? the answer will certainly be that it lies in the latter.

Hallucinations are furthermore distinguished from other kinds of sense-deception which are not purely individual, such as the perception of a stick half-immersed in water as broken, or the duplication of an object of vision looked at through a prism. Hallucinations are purely individual phenomena, depending on some psychical abnormality in the percipient subject. They are "subjective sense-images," which strike him as actual perceptions; he is *convinced that he is actually perceiving;* in a word, to use the ordinary phrase, they possess *objectivity*. The strength of this conviction of actuality in persons who have hallucinations is a matter of frequent observation. "These voices," says a patient to his doctor, "seem to me just as distinct as your voice, and if I regard your words as actual, so I must the other words which come to me, I know not whence; I hear them just as I hear you."

Moreover, *hallucinations have far more influence than simple perceptions upon intellectual and volitional process*. So far as their content constitutes an affirmation, it is taken as true; whilst those that challenge to action, or are in content closely connected with the idea of an action, exercise an unusual compulsion upon the will. Here is a case—I will not go into details—which illustrates the latter point. A patient of mine, who suffered from hysterical insanity, often heard in the evening and at night the voice of her father, who was dead, calling her to him in heaven, and thereupon she would run to the window, and, looking up to heaven, would talk aloud to him for hours at a time. As her conduct disturbed the other patients, the doctor asked her to desist from it; but, though she saw clearly enough that the request was entirely reasonable, and, indeed, resolved not to behave in that way again when she heard the voice, her resolution, as was to be expected, had no effect whatever upon her actions.

GRIESINGER'S definition of hallucination as the *projection* of an idea outwards, though very generally accepted, is not at all happy. It implies that the "sense-images," as GRIESINGER calls them, are first given to consciousness as internal processes. But obviously the fact that they are internal processes does not involve their being given to consciousness as such; nor are they

Hallucinations are usually divided into two great groups—*elementary* and *complex*. In the elementary type the content of the fallacious perception is such as to indicate but little co-operation on the part of the ideational centres: flames or sparks or pillars of fire are seen, or sounds heard of rustling, cracking, and the like. In complex hallucinations words are heard and forms seen.

With these remarks we may for the time being conclude our general sketch of the subject. We will proceed next—

(1) To discuss the conditions which heighten the disposition to hallucinate; and

(2) To treat of hallucinations of the different senses; and then we shall be ready

(3) To determine the relation of hallucinations to pseudo-hallucinations, a matter of particular importance for our purpose.

(4) Finally, we shall have to consider the theory of their genesis.

First, then, as to *conditions promoting the disposition to hallucinations of any sense.*

(1) First come *affective-conative conditions.** A patient of mine who suffered from persecution-mania with numerous auditory hallucinations proved free of the latter during the first few weeks she was in the asylum, in all probability because she felt happy at knowing she was out of the reach of her persecutors. After a few weeks, however, she began to scent mischief in her new surroundings. First of all isolated hallucinations occurred, and then they came in numbers, just as they had done before she was admitted. She had them whenever she heard people speaking at a distance, so that she could not understand what they were saying; for hearing such unintelligible conversation aroused a suspicion in her that they were speaking evil of her, and that sent her off into a state of extreme excitement, in which she heard them insulting her. One often finds that in these cases of hallucinations accompanying delusions of persecution a change of surroundings causes temporary cessation or diminution of the trouble. Another patient of mine who had similar delusions and hallucinations counted me as one of her persecutors, and used always to have hallucinations particularly badly

* *Gemütsbewegungen.* For the translation of this term cf. BALDWIN'S *Dictionary of Philosophy and Psychology*, I, 22, 317; II, 530. But the suggested translation is so clumsy that I have in several places used purely affective terms, though never without indicating the German.—*Tr.*

when she heard me coming up the stairs to visit her. The thought of me provoked in her a state of extreme suspicion and anger, and with it came a whole heap of auditory hallucinations.

(2) Another factor is *strained attention*, as may be seen in the following case of KAHLBAUM'S.*

A country carpenter had become mentally affected owing to the death of his child, whom he loved dearly; the vision of his child played an important part in his disorder. "In the asylum his condition improved till he was almost cured; there remained only this trace of derangement, that he used to behold his child's form, or at any rate its face, in his field of vision *whenever he directed and concentrated attention upon any point in front of his eyes*. In time the form quite lost the character of a human face, and nothing remained but the vision of a bright roundish disk.

"In an ordinary way he did not observe it, not even when something occurred to make him excited and cross, as, for instance, when he heard from his wife, with whom he used not to live on very happy terms. It appeared *only when he wanted to fix his gaze straight on any point*, and then it appeared without any internal excitement on his part, and against his wish and will. His discharge was made conditional on the cessation of this phenomenon, but, in spite of his desire to be discharged, he could not, 'if he was to tell the truth,' conceal the fact that it continued to occur."

Strained attention is very apt to occasion auditory hallucinations in insane persons who are kept in solitary confinement.

(3) *Exhaustion* is another condition that favours the occurrence of hallucinations. It often creates the disposition to them, and strengthens the disposition if it is there already. Under this head we may mention the hallucinations that occur just before one falls asleep—hypnagogic hallucinations, as they are called. They do occur in healthy persons, but they are particularly common in cases of mental disease. Indeed, many patients do not have hallucinations, except in the moments just before they fall asleep, though very often, as their disorder gets worse, hallucinations begin to occur in the day-time as well.

(4) Another favourable condition consists in *artificial or morbid stimulation* of the nerve-structures whose functional activity is required for perception. Such stimulation may be artificially effected, firstly, by intoxication—for instance, by cocaine, bella-

* *Die Sinnesdelirien* (*Allgemeine Zeitschrift für Psychiatrie*, Bd. 23).

donna, or santonin—and secondly, by the electric current, as in JOLLY'S experiments.*

JOLLY, having a patient who suffered from *tinnitus aurium*, applied the constant current, one electrode being placed against the patient's ear and the other against the back of his neck. He describes the effect in the following words: "At first the subjective auditory phenomena consisted of nothing more than continuous ringing inside his head; he located it sometimes chiefly on the right side, at other times more on the left. . . . The presence of hallucinations could not be ascertained at first, but they occurred in the shape of phonisms after the patient had been tested electrically several times and the constant current applied in the hope of relieving the *tinnitus*." For example, in the course of the electrical treatment he heard ringing in his head a prayer which was familiar to him from his childhood:—

"Wenn der lichte Sonnenstrahl von Osten
Durch den grauen Morgennebel bricht," etc.;

and simultaneously he saw the form of the writer of these lines, which he knew from prints. At the end of the sitting he stated explicitly that he had never heard voices like this before: it was as if his thoughts became audible." So, you see, electrical stimulation occasioned quite complex hallucinations.

(5) *Ordinary sense-stimuli* may also promote the occurrence of hallucinations when a disposition to them is present beforehand.

In certain cases hallucinations vanish if the eyes are closed or the ears stopped, and recur as soon as they are opened again. Patients suffering from chronic paranoia, who have hallucinations of an unpleasant nature, will often hold their ears rigidly closed in order to escape the voices that insult them; and the literature of the subject contains many examples of hallucinations vanishing when the eyes are shut. KANDINSKY, a psychiatrist who was himself troubled for a time with acute hallucinatory insanity, reports that elementary hallucinations remained when he closed his eyes, but those of a complex kind disappeared. It is easy enough to see how this effect comes about.

(6) But the curious thing is that in individual cases hallucinations are encouraged by *prevention of sense-impressions*. Thus closing the eyes may encourage them; and this is easy to understand if you reflect that, when sense-impressions are cut off,

* *Beiträge zur Theorie der Hallucination* (*Archiv für Psychiatrie*, Bd. 4).

insane delusions can assert themselves with greater force, and the affective-conative excitement accompanying delusions may give the necessary stimulus for hallucinations.

On a different footing stand cases of patients afflicted with hallucinations of an unpleasant character who prefer to be in the midst of a great noise, because then their attention is to some extent diverted and they thus gain relief (BERZE*). LIEPMANN† found that visual hallucinations may often be produced in persons suffering from alcoholic delirium by covering their eyes with a cloth, as well as by pressure on the eye-balls. It seems here as if the weak idio-retinal excitations were nullified when light entered the eyes.‡ Under this heading, too, comes KANDINSKY'S statement that he found an absolutely passive attitude most favourable for hallucinations, there being then no diversion of energy into other directions. §

(7) Finally, the occurrence of hallucinations is promoted by *hallucinations of other senses.* A patient of KAHLBAUM'S, who had numerous auditory hallucinations, used to hear the sound of cannon firing; and one day, as he happened to be standing in the open with his attendants at a spot from which the church-tower of a neighbouring town was visible, he cried out: "Don't you hear cannon firing over there? They are firing on the church-tower. There—a shot! There—another! The tower is shot down. Look, look, it is tumbling!"

These, then, are the conditions disposing to hallucinations. I have presented them in their concrete complexity, as we meet with them in actual cases. In a future lecture we shall have to abstract what is common to them.

Passing on to *hallucinations of the several senses,* I will take those of *hearing* first. Elementary hallucinations of hearing take the form of simple clangs, sounds of cracking, shooting, flowing water, and the like. They are often precursors of complex hallucinations. Sometimes they occur for years before the final onset of a disorder involving the complex type, and as the psychosis improves they are often the last to persist.

Complex auditory hallucinations may be single words or entire sentences. The words are very often terms of abuse—"rascal,"

* *Über das Bewusstsein der Halluzinierenden (Jahrbücher für Psychiatrie und Neurologie,* 1897).

† *Archiv für Psychiatrie,* Bd. 26.

‡ Cf. KRAEPELIN, *Psychiatrie,* 5th ed., p. 98.

§ *Archiv für Psychiatrie,* Bd. 11.

"thief," and so on, or, in the case of women, abusive terms of a sexual kind—a fact which shows how the content of hallucinations depends on mood. In mental disorders the commonest mood is one of profound depression; hence the frequency of hallucinations of an unpleasant character. In cases where a period of delusions of injury and persecution is followed by a period of delusions of grandeur, the voices heard in the former period, so far as voices are heard at all, are almost exclusively of an unpleasant, insulting nature; whilst in the second period their character is generally pleasing, and the patient hears them announcing that he is destined for some peculiar glory. I had a patient once under my care suffering from delusions of grandeur, who used to hear the voice of God bidding him redeem the world and help poor labourers.

Patients can distinguish whether the voices are those of men, women, or children, of acquaintances or strangers; above all, in genuine cases of hallucination, they can tell the distance and direction from which they come, that is, *they localise them in space.* We shall see later on how this localisation is related to the *objectivity* which attaches to the voices. I explained what is meant by the character of objectivity in my preliminary sketch of hallucinations; you remember how a patient averred that the "voices" he heard made the same claim upon his belief in their reality as his doctor's voice. And not only are the voices themselves regarded as objective, but credence is paid to what they say.

Often it is evident that auditory hallucinations depend upon external stimuli of a more or less indefinite nature. I mentioned this point before when I was sketching the conditions that intensify the disposition to hallucinate, and I described the case of a patient, who, on hearing people talking indistinctly at a distance, used to suspect them of talking about her. This notion sent her off into a state of violent excitement * that strengthened her disposition to hallucinations, until finally she heard them using insulting expressions about her.

A case of W. SANDER'S also may be referred to in this connexion. The patient was suffering from delirium potatorum, but, says MEYNERT†, from whom I take the quotation, "was not a regular drunkard; it was merely that being in a condition of excitement and emotional tension ‡ he had been taking too

* "*Gemüthserregung*," cf. note, p. 21.—*Tr.* † *Psychiatrie*, 1884, p. 16 ff.
‡ "*Gemüthsspannung*."—*Tr.*

much beer for some days. At first he merely nurtured in a rather alarming fashion some delusions of reference or interpretation * about the conduct of certain people; but a few days later, as he was having a sweat-bath, he heard a melodious noise of drops of water falling into bowls, and through them he caught the sound of girls' voices, two different voices, speaking fast and low, and mocking at him, saying: 'There he sits; see, how he puffs.' He asked the bath-attendant who it was speaking, and to convince him that he was in error the attendant turned off a tap. Thereupon the splashing of water ceased, and with it the voices, only to begin again as soon as the tap was once more turned on." We shall shortly meet with a similar case in another connexion.

Occasionally auditory hallucinations occur in one ear only, and then they are to be attributed to morbid stimulation in the sensory tract concerned.†

We must not conclude our account of auditory hallucinations without reviewing an interesting complex of phenomena usually called "*audible thinking*" ‡ and "*double thinking*." I will say at once, however, that it seems to me impossible to identify the two, as is usually done; we shall find ourselves obliged to draw several distinctions between them.

First, as to audible thinking. MEYNERT rightly pointed out that delusions of reference often lead a patient to infer that his thoughts are audible; he brings a thought which he has at one moment into relation to another person's behaviour a moment after, and, regarding the other's behaviour as dependent on his own thought, he draws the crazy conclusion that his thought was audible.

At the same time, this is not a sufficient account of all the cases in which patients affirm that their thoughts are audible. We have to distinguish two types, the *delusional* and the *hallucinatory*. In illustration of the latter I will give you a case of

* "*Beziehungswahn.*" I take the translation of this term from BALDWIN's *Dictionary of Psychology*, etc., ii. 262.—*Tr.*

† Cf. KOPPE, *Gehörsstörungen und Psychosen* (*Allg. Zeitschrift für Psychiatrie*, Bd. 24); and for other references see PARISH, *Hallucinations and Illusions*, pp. 174–5.

‡ "*Gedankenlautwerden.*" The English terminology here is somewhat confused. PARISH, e.g., (*op. cit.*) seems to use "audible thinking" to cover both *Gedankenlautwerden* and *Doppeldenken*. STÖRRING, as will be seen, distinguishes the two and also subdivides the former in two ways, first into delusional and hallucinatory types, secondly into auditory and motor types. I have kept "audible thinking" for auditory *Gedankenlautwerden*. For the motor type see Lecture iv.—*Tr.*

CRAMER's.* The patient in question was a divine; his mental derangement was consequent upon the sudden death of his wife, together with professional worries. He heard voices proceeding from his ears and his chest, and noticed what he called the miraculous fact that nearly all his thoughts became audible in his feet, and often in other people's. In a document which he wrote for the information of the staff of the asylum he gave the following account of the matter :—

"The voices came from the corners of the room, from the earth in the garden, from the cellar below, from the murmur of flowing water, from the feet of human beings (first from my uncle's feet as he walked up the parsonage stairs), from the walls. There were purring spinning-wheel voices and humming-top voices, there were trumpet-like voices, there were dull hollow voices; there were *voices sounding like the tone of the objects from which they proceeded*. Voices came from the ticking of the clock's pendulum in the maid's room, from the drawing of the fire in the stove, from the ringing of the door-bell. Here I have been in this ward for two years and a half, and almost every day and every hour of the day I hear voices about me, sometimes sounding from the wind, sometimes from footsteps, sometimes from rattling dishes, from the rustling trees, or from the wheels of passing trains and vehicles. *I hear the voices only if I attend to them*, but hear them I do. The voices are words and tell me one story or another, just as if they were not thoughts in my head, but were recounting past deeds—yet only when I think of them. The whole day through they keep on telling truly my daily history of head and heart." *They cry aloud in his ears what he is thinking and what he has experienced* "accurately and truly, in absolute correspondence to the facts of present and past." He hears them in his own feet, too, as well as in other people's, and I should add that occasionally he notices an "undulatory up-and-down movement beneath his feet." "Often, too, he says he has a feeling of strain in his chest, and then it will be from his chest that the voices speak."

This case is interesting in several connexions, but the point of principal interest for us is the phenomenon of audible thinking. The patient says that all his thoughts become audible—that they are cried aloud in his ears. That is, he has auditory hallucinations, and "the whole day long they tell truly his daily history

* *Die Hallucinationen im Muskelsinn bei Geisteskranken und ihre klinische Bedeutung*, p. 36 ff.

of head and heart," that being just what marks them off as audible thinking. Accordingly that term is used here, because the subject is aware of the extremely intimate connexion between the content of his hallucinations and the train of his thoughts at the moment, a connexion which is absent in other hallucinations, or rather, I should say, is not present to the subject's knowledge.

You see now the difference between delusional and hallucinatory audible thinking. Before proceeding to investigate the phenomenon further I want to call your attention for a moment to certain other conditions on which this patient's hallucinations depended. He says he hears voices proceeding from the murmur of flowing water, from the wind, from the wheels of passing trains and vehicles, from rustling leaves, or rattling dishes, or the feet of passers-by, as first of all from his uncle's feet as he climbed the parsonage staircase; that is, the voices are localized with these noises. Occasionally they are localized in his own body; they speak from his chest, for instance, when he notices a feeling of strain there; but when they share the localization of other noises there is the interesting peculiarity about them that "they sound like the tone of the objects from which they proceed." Finally, we see here, as in previous cases, the dependence of hallucinations on strained attention. The patient says, "I hear the voices only if I attend to them."

To these points we shall have to return in a future lecture; for the moment we must revert to our discussion of audible thinking. We had distinguished two types, you remember, one delusional and the other hallucinatory. Only the latter will concern us any further at present. I should remark also that verbal ideas may seem to be uttered aloud as the result of motor, as well as of auditory, hallucinations; but I reserve what I have to say of motor cases till we come to hallucinations of the muscular sense.

Keeping then to the auditory kind, to audible thinking as exemplified in the case I quoted, we must show how it is related to what is called *double thinking*, of course in its auditory form. Double thinking is the term used when a patient's thoughts seem doubly present to him, first in the normal way, and secondly by way of hallucinatory auditory perception. It occurs most commonly and most distinctly in reading and writing. In reading the "voice" usually repeats what the patient reads; in writing it always dictates what he writes. It should be added

that reading *aloud* often succeeds in silencing the voices, or at any rate represses them, and that some patients are not troubled by them when actually writing, but hear them as soon as they read over what they have written.

For the explanation of the voice repeating what is read we must look to the fact that in reading visual images of the printed or written words precede the corresponding auditory verbal images. When there is a tendency to auditory hallucinations present, and they are easily aroused by stimuli from other senses, an hallucination of the sound of a word will follow the visual perception of it. So the repetition of what is read is due to reflex auditory hallucinations aroused by visual stimuli. Sometimes, however, the process seems to be mediated by stimulation of the centre for the articulatory movements of speech, since it is often found to be in a condition of hyperaesthesia in these cases*, and there is no doubt that a state of irritability there may give rise to reflex auditory hallucinations. A patient of CRAMER'S, for instance, says: "Evil thoughts are always coming into my mind to be uttered; I can repress them, but then I hear them uttered in my left ear or my head" †; that is, an excitation in the articulatory centres provokes a reflex auditory hallucination on failing to discharge into the centrifugal speech-tract. Of course, the interval between visual perception and auditory hallucination will become more marked when the excitation arousing the latter passes through the speech-centres. CRAMER assumes hyperaesthesia of the centripetal speech-tract, but that is unnecessary‡, and, among other things, makes it impossible to explain the disappearance of the hallucinations that so often occurs when the patient begins to read aloud; for loud articulation must mean more intense stimulation for the centripetal tract than the slight articulatory movements that are usually involved in reading, and ought accordingly, on CRAMER'S hypothesis, to produce a greater effect. On the other hand, if there is abnormal irritability of the auditory centres (and sometimes of the articulatory centres too), as the result of considerable congestion, we can understand that it will be diminished by strong discharges.

That the voice should dictate what the patient writes is easier to explain, for when the auditory centres are disposed to reflex hallucinatory excitation, hallucinations must inevitably occur

* Cf. KLINKE, *Archiv für Psychiatrie*, Bd. 26.

† *Op. cit.* p. 24.

‡ Cf. TIGGES, *Allgemeine Zeitschrift für Psychiatrie*, Bd. 48.

in less time than is needed for the execution of graphic movements. But why does the reflex audition sometimes cease during actual writing and recur when the patient reads over what he has written? Surely because every fresh discharge in the articulatory apparatus transmits a fresh stimulation back along the centripetal tract.

You may have noticed that about double thinking in reading I said: "The voice usually repeats what the patient reads." *Usually*, not *always*; for occasionally, though far less commonly, patients state that the voice precedes their reading. A case of BECHTEREW'S * will show us under what conditions this happens.

BECHTEREW'S patient says that "thinking hurts him, for he cannot think for himself. Whenever he begins to think, all his thoughts are dictated to him. He is at pains to change the train of thought, but again his thinking is done for him." It is always with his left ear that he apprehends the prior utterance of his thoughts. "In church he not infrequently hears a voice singing, anticipating what the choir sings. . . . If he walks down the street and sees, say, a sign, the voice reads out to him whatever is on it, the surname of some tailor or shoemaker, or the like. He affirms it is not he that reads, for sometimes *he is not thinking of the sign at all*, and yet the voice reads out to him what is on it. If he sees an acquaintance in the distance, the voice calls out to him, 'Look, there goes so-and-so,' usually before he begins to think of the person. Occasionally, though he has not the least intention of noticing the passers-by, the voice compels him to attend to them by its remarks about them."

"*When he reads a book, the voice repeats what he has read; but if he looks into a book without reading, the voice reads it out to him.*" That is, if he really occupies himself with reading and directs his attention upon the printed words and their meaning, the voice repeats what he has read; but if he merely looks into the book without reading, *without directing his attention upon the printed words*, the voice reads them out to him. In just the same way the voice utters the names of passers-by before he has noticed them, and even when he has not the least intention of noticing them. It is the voice that first draws his attention to them. In church the voice anticipates what the choir is singing.

* *Über das Hören der eigenen Gedanken* (*Archiv für Psychiatrie*, Bd. 30).

I do not think there is any difficulty in seeing how the anticipatory audition comes about in this case. We have to do with a subject in whom ideas and percepts ***arouse auditory hallucinations whilst they are still on the outskirts of the field of consciousness***, and before they are themselves noticed.

So much for audible and double thinking.

FOURTH LECTURE

Hallucinations: Visual—Motor—Of taste and smell—Of cutaneous and organic sensibility.

WE may turn next to the discussion of ***visual hallucinations.*** Once more we have to distinguish elementary and complex kinds, the former being flashes of light, fiery pillars or wheels, rainbow colours, and so on; whilst the latter are generally visions of human figures (which may simply "appear" or may also speak) and of forms of animals. Delirious patients often see mice, rats, cats; under suitable emotional conditions they may see snakes and lions. In many cases only one form is seen, in others whole troops of them. Sometimes they seem stationary, sometimes in motion; and genuine visual hallucinations are always ***fixedly localized in perceived space.***

They may seem two-dimensional, like pictures on a flat surface, or three-dimensional and corporeal. Patients are often heard to call the figures they see mere pictures. PARISH * quotes the report of a man, said to have been otherwise normal, who on waking one morning early saw the figure of his mother who was not very well at the time, "on the curtain, as if depicted there —the face deadly pale, with blood flowing on the bedclothes. For a moment," the narrator says, "I lay horror-stricken and unable to move or cry out; till, thinking it might be a dream or a delusion, I raised myself up in bed and touched the curtain. Still the appearance remained (although the curtain on which it was depicted moved to and fro when I touched it), as if reflected by a magic-lantern. In great terror I got up," etc. etc.

When three-dimensional, hallucinatory figures may—and this is most usual—appear to hide objects behind them, or they may be transparent, as happens particularly when they are gradually passing away. It is especially in the convalescent stage that hallucinations of this kind occur, and you may find them also in the much-quoted visions of Nicolai.

* *Op. cit.* p. 243.

In relation to eye-movements the figures do not behave alike in all cases; sometimes they follow the movements, sometimes not—a fact which has to be kept very carefully in mind in erecting a theory of hallucinations.

Visual, like auditory, hallucinations are found to be dependent on mood, and in this connexion I should like to give you a fairly detailed account of a case that came under my own observation, in which not merely did the patient's mood determine the occurrence and contents of her hallucinations, but their very localization depended on her apprehension that the person she used to see might appear at this spot or that.

This patient was a very cultured lady, a widow. On her husband's death she had to adapt herself to her altered circumstances, and having little knowledge of business she fell into debt, and borrowed money from a cousin to whom she had shown much kindness in earlier days. When she failed to repay the money this cousin began to pester her for it roughly, and was for ever saying to her, "When are you going to get me the money? If you don't bring it now, I'll tell your son" (who helped to support her).

Her worries ended in her falling into a state of hallucinatory insanity, and an attempt at suicide led to her internment in an asylum. The third day after her arrival she began to have hallucinations. "Does he come in here too, the brazen fellow?" Asked whom she meant, she replied, "My cousin—he wants his money. He is saying, 'When are you going to get me the money?'" "Where is he?" "There by the cupboard; don't you see him? Surely you must see him. Do you want to make me out a fool? I am not crazy. Look, he's winking at me to say nothing about him and his villainy, the rascal. But I'm just going to tell it all. There! now he's putting his tongue out at me. I can't look at him any longer. I only hope he'll do me no harm."

As soon as she turned her gaze away from the spot where the figure appeared she saw it no more, that is, *it did not follow the movements of her eyes.* It appeared to her "by the cupboard," more precisely as *coming out from behind* it. She was afraid her cousin might have followed her and hidden himself, and might suddenly spring out of his lair. If any one came between her and the spot where she localized the figure, so as to hide it from her, its localization changed, and she saw her cousin *looking over the other person's shoulder.*

EMMINGHAUS* relates something similar of a man "quite reasonable in other respects, who after a good many hallucinations used to see the apparition of a skeleton. If any one stepped between him and the place to which he projected the phantasm, he still saw the skull over the other person's shoulder."

If my patient went out into the garden she used to grow calmer at first, but by and by, as her apprehensions returned that her cousin might have hidden himself there and might suddenly reveal himself, she could see him peeping out from behind a tree. Occasionally it happened that when she was talking to people her cousin suddenly looked over somebody's shoulder. *When she shut her eyes the apparition vanished.*

In this case localization is evidently dependent on the fear that the cousin might be hiding somewhere and might suddenly emerge. That is why she localized him as coming out from behind a cupboard, or as looking over the shoulders of people she was talking to, or as peeping out from his lair behind a tree.

Before we leave this class of hallucinations, I want to give you some instances that point to a peripheral origin, and others where a central origin is indicated. A case published by SEPPILLI† falls into the former class.

The patient was "a woman, fifty-six years old, troubled with anxiety and insane delusions of a religious tinge, subsequently accompanied by hallucinations of the left eye and ear.

"As soon as she turns her gaze to the left the devil appears at a definite spot in space, about one metre off, and always without exception before her left eye only. (He is tall in stature, black, has a terrible visage and wildly rolling eyes; his mouth spits fire; his hands and feet end in claws.) The moment she shuts her left eye or is put into a dark room the monstrous figure vanishes."

A left-sided visual hallucination therefore. SEPPILLI gives the following details about it:—

"The first point to notice was that the monster always appeared at a constant distance (about one metre) from the patient, and did not appear even there unless she turned her head slightly to the left; she never saw it straight in front of her nor on the right side of the median plane. If we placed an opaque disc between her left eye and the devil, or the place where he might

* *Allgemeine Psychopathologie.*

† *Neurologisches Centralblatt*, 1892.

be expected to appear, he vanished if he was present, and if not, did not appear at all. Seen through a prism the apparition was doubled; it seemed to approach and recede as she looked at it through the right or wrong end of a pair of opera-glasses. In a mirror set at the proper distance she saw it twice, at just the right spot where the image of a real object would appear."

Some cases of UHTHOFF's * also come under this heading. In one of them the patient's sight had begun to deteriorate twenty years before, when she was thirty—shortsighted, they called it. "When she was about fifty she was found to be suffering from central choroiditis in both eyes, and thenceforward a dark spot remained in front of the centre of each eye, like black shadows at first, but afterwards (as they are still) like misty spots.

"Objective examination of the eyes revealed in both myopia of 4 D, with $V=\frac{1}{6}$; the patient could still with difficulty read small print when brought quite near. The fields of vision were peripherally free, but there was a considerable central scotoma of defective vision in either eye, having a diameter of about 25° in the horizontal and 15° in the vertical meridian. Corresponding to these scotomata the ophthalmoscope revealed a large central and old patch of atrophy of the choroid in both eyes. The scotomata are to-day still clearly positive (grey spots), and the patient can draw their forms on paper.

"On 14 July, 1897, a week before her introduction to the hospital, she noticed a heaviness in the head and a tired feeling, so that she was constantly wanting to rest. The same day, as she happened to be looking out of the window, she suddenly observed "vine-leaves" on the pavement of the yard, which kept moving and changing size. This apparition of leaves persisted for some days, and then turned into a tree with buds. As she walks along the streets she sees this tree among the real bushes, as in a mist. She is a most intelligent patient, and on examining the phenomena more closely she is able to add the following details: The leaves, bushes, etc., appear localized in the region of the positive central defects in the field of vision, and their magnitude varies with distance, the apparition having a diameter of about 2 cm. at a distance of 10 cm., on the perimeter 5° to 10° from fixation point in all directions, whilst when

* *Beiträge zu den Gesichtstäuschungen bei Erkrankungen des Sehorgans* (*Monatsschrif. f. Psychiatrie und Neurologie*, 1899.

projected on to a house opposite it is big enough to cover a whole window."

SEGLAS's second case is that of a man about fifty years old, a paranoiac and given to alcoholism. "He affirmed that he saw a policeman in front of his left eye. Objective examination of his eyes revealed an old central choroiditis, with a large area of atrophy of the choroid and growth of a corresponding central positive scotoma of considerable size. By his own account the patient had noticed this defect in his field of vision before he became mentally deranged, as a dark spot in front of his eye, and obviously it had been the starting-point for his left-sided visual hallucination. His other eye showed no signs of pathological changes."

There are many cases, however, when hallucinations of vision seem to be entirely dependent on central factors. ESQUIROL observed a case in which there was atrophy of the optic nerve, softening of the corpora quadrigemina, and destruction of the optic radiations right into the base of the corona radiata; yet, despite annihilation of the optic tract right up to the cortex, the patient had many and varied visual hallucinations.

Certain cases of hemianopsia also come under this heading. For the sake of those who are not versed in medical science I must explain that the nasal half of each retina is centrally represented in the occipital lobe of the opposite hemisphere, whereas the temporal half of each retina sends nerve-fibres to the occipital lobe on the same side as itself. Consequently lesion of one occipital lobe causes a defect of vision affecting the temporal half of the eye on the same side, and the nasal half of the other eye. Extensive disease of the left occipital lobe, for example, means functional incapacity, that is blindness, of the temporal half of the left retina, and the nasal half of the right. Rays coming from the right side will fail to evoke any sensation, and so this is called a case of right lateral homonymous hemianopsia. Well, UHTHOFF * describes just such a case, where nevertheless the patient had a visual hallucination in the defective right halves of the fields of vision; it was localized in the right halves, and did not cross over into the left halves at all, so that a focus of disease in the left occipital lobe had to be assumed. HENSCHEN† quotes a considerable number of cases, and UHTHOFF gives a complete list of references. Of course, part of the cortex of

* *Loc. cit.* p. 25.

† *Klinische und anatomische Beiträge zur Pathologie des Gehirns.*

the diseased occipital lobe must be preserved when hemianopsia is accompanied by visual hallucinations in the defective halves of the fields of vision, and so we are led to assume a purely central cause of hallucinations in such cases.

I will treat *motor hallucinations* next. They are usually divided into three classes, as they are concerned with (*a*) the muscular apparatus of the eyes, (*b*) the apparatus of locomotion, and (*c*) the apparatus of speech.

(*a*) As to the first class I will only mention the two most familiar phenomena—macropsy, when objects are seen gigantic; and micropsy, when they are seen abnormally small.

(*b*) Patients who suffer from hallucinations connected with the locomotor apparatus often feel as if they were swinging in the air, or falling into the depths from a height, or being drawn up into the heights. They feel abnormally light, so that they are afraid every breath of air will blow them over, or again abnormally heavy. A patient of mine, suffering from lesion of the frontal region of the brain—in attempting to commit suicide he had shot a bullet into his head at one temple, and it had come out again at the other—used to complain that the bed he lay in was moving on wheels, and that he was carried along as if he were in a train. Shortly afterwards a flaccid paralysis of one arm set in.

Frequently these locomotor hallucinations are combined with cutaneous hallucinations. Thus a patient of mine used to assert she was constantly being beaten, and for weeks at a time, whenever the doctor came to see her, she would ask him reproachfully: "What do you beat me for?" whilst at other times she used to complain and say: "You toss me away over twenty beds."

(*c*) Many writers are inclined to deny the occurrence of hallucinatory sensations of articulatory movements. But though we may doubt whether they were really present in many alleged cases, we cannot help admitting that they do occur sometimes, as is decisively shown by a case of CRAMER'S.* The patient, congenitally deaf-mute, had mastered both the deaf and dumb language and also articulate speech, and he used to have hallu-

* *Über Sinnestäuschungen bei geisteskranken Taubstummen* (*Archiv für Psychiatrie*, Bd. 28).

cinations of the latter, which can only have been hallucinatory sensations of articulatory movements. Every time an hallucination occurred he had a sensation as if a word were spoken. Now, as he also said that he himself had thought these words, we have here a case of hallucinatory thought-utterance of the motor kind.*

I will now say a word or two about *hallucinations of taste and smell.* But I must observe at once that as regards both these senses and organic sensibility, of which I shall speak in a minute, the division of erroneous perceptions into hallucinations and illusions is very difficult to maintain. In the case of sight and hearing there is generally no difficulty in ascertaining whether anything external corresponding to the false perception has occasioned stimulation of the sense-organs, but in the nature of things the action of gustatory, olfactory, and organic stimuli is not so easy to control.

Patients suffering from erroneous perceptions of smell complain of vitiated atmosphere, stench of urine or faeces, malodorous sweat, fumes of sulphur. If they have hallucinations of taste, they say their food tastes different, tastes of poison or of human flesh—a conviction which, you should notice, involves complication of erroneous perception with delusion of judgment. The mistakes of taste and smell that I have instanced are all of an unpleasant character; pleasant hallucinations of these senses are very rare, and are indeed practically confined to hysterical persons.

Now a word about *hallucinations of the cutaneous sense.* In delirium tremens patients often have hallucinatory sensations of spiders creeping over their skin, of ants running over them, or of being covered with fur. They frequently complain of electric currents traversing their bodies. Others feel as if they were being kissed, or as if some one were lying by their side. I had a patient who used to complain to me and say: "Doctor, I am lying on broken glass; put me in another bed."

Hallucinations of organic sensibility may also be dispatched in a couple of sentences. Patients with hallucinations of this kind feel as if their viscera were cut in pieces or parts torn out

* "*Hallucinatorisch-motorisches Gedankenlautwerden*," v. note, p. 26.—*Tr.*

of their bodies, such as the genital organs or heart, or kidneys, or brain. A patient of mine suffering from secondary dementia, who took herself to be "the Empress Barbarossa,"[1] used for a long time to reproach her doctor every morning that he came to see her with having cut open her lungs during the night. Erroneous perceptions of this kind are combined with the most violent expressions of emotion that we meet with among the insane.

FIFTH LECTURE

Hallucinations and Pseudo-hallucinations: distinction between percepts and ideas: conditions of objectivity-consciousness—Theories of the genesis of hallucinations and pseudo-hallucinations.

HAVING dealt with hallucinations of the several senses, we may now proceed to inquire *how hallucinations are related to pseudo-hallucinations.*

As we have seen, hallucinations are subjectively equivalent to perceptions; in both alike we believe that we are dealing with something objective. But with pseudo-hallucinations we shall find that it is not so. Although they differ from ideas in certain characteristics which they have in common with hallucinations proper, they lack the character of objectivity. Hence a comparison of the two will be of great assistance to us in an attempt to determine the conditions upon which consciousness of objectivity depends.

The distinction between percepts and ideas has been stated by psychologists and psychiatrists in many different ways.

(1) The commonest opinion is that percepts differ from ideas only in the degree of their intensity. If ideas assume abnormal intensity, it is said, hallucinations result, that is phenomena with the character of percepts.

(2) Some writers, like FECHNER for example, accentuate another point as well; they say that percepts have an *independence of the will* which does not belong to ideas. Percepts are marked by *receptivity*; ideas or reproductions are accompanied by a consciousness of activity.

(3) A third distinction is chiefly emphasized by psychiatrists. Not only, say they, do hallucinations differ from mere ideas in greater intensity and independence of will; we must also assume the presence of "*concomitant muscular and visceral sensations,*" which do not accompany ideas.

Let us now consider the nature of pseudo-hallucinations, and thus test the value of these statements. I will start from concrete cases, premising that we owe the first exact description of these phenomena to the psychiatrist VICTOR KANDINSKY.*

A certain Dr. Dolinin was recovering from a psychosis which included hallucinations and pseudo-hallucinations. One evening KANDINSKY gave him twenty-five drops of opium. He continued working at his writing-table. "An hour later he notices that ideas come with great facility; his thinking is stronger and clearer than usual. On stopping his work . . . he observes during the course of one hour (his eyes being closed, but his consciousness not in the least misty, and without feeling the slightest inclination to sleep or doze) optical pseudo-hallucinations of the utmost variety and vivacity—faces and whole figures of people he has seen during the day, faces of old acquaintances whom he has not met for a long time, and persons quite unknown to him; among them appear from time to time white pages of paper printed with various characters, and the image of a yellow rose occurs repeatedly; then, finally, whole pictures composed of several persons in different kinds of costume, occupying all sorts of positions relatively to one another, but always motionless. These pictures appear for one moment and vanish, to be followed at once by others which have no logical connexion with them. *They . . . seem to stand before his eyes*, but at the same time they are *absolutely unrelated to the black field of vision of the closed eyes;* to see them he must divert his attention from the black field; to fix attention upon it stops the appearance of the images. Despite repeated attempts he has never succeeded in combining the subjective image with the dark field of vision so as to make the former appear part of the latter.

"*Notwithstanding their sharp contours and lively colours, notwithstanding the fact that they seem to be in front of him as he looks at them, these images do not possess the character of objectivity.*" *He says that he does not see them with his "outer eyes," but with "inner eyes."* Their distance from the inner seeing eye varies from .4 to 6 metres, but usually corresponds to the distance of clear vision, which in D.'s case is slight, as he is short-sighted. . . .

"These subjective phenomena were not hallucinations, but neither were they simple sensuous ideas, that is, ordinary images of fancy or memory. It so happens that memory-images, both spontaneous and voluntarily revived, appear fairly often among

* *Kritische und klinische Betrachtungen im Gebiete der Sinnestäuschungen.*

the pseudo-hallucinations proper, and, thanks to this circumstance, the difference between the two is very clearly evident.

"All through his pseudo-hallucinatory séance, if I may use the expression, D. has been sitting in an easy-chair, his eyes shut, without, as I said, feeling the least inclination to sleep, but rather an increased capacity for brain-work. With the intention of bringing the observation to an end he goes to bed about two hours after midnight, but cannot get to sleep until four o'clock. His pseudo-hallucinations continue *in spite of his wish to be finished with them.* During these hours occasional genuine hallucinations of vision occur, together with the pseudo-hallucinations; and with the possibility of making an immediate comparison of the two kinds of images it becomes quite obvious that the marked difference between them does not lie merely in their different degrees of vivacity, *but principally in the character of objective reality which distinguishes hallucinatory images, but is wanting in pseudo-hallucinations.* As I have said, the latter stand in absolutely no relation to the idio-retinal black of the objective field of vision, in which the hallucinatory figures and forms appear." *

Another time D. has a pseudo-hallucination of the figure of an hussar, every detail of whose face and apparel he perceives *without the least feeling of internal activity on his own part.* He sees "not only the hussar's red cap, but even the cockade on it, with every feature of his visage and the expression on it, his black whiskers and curled moustache, every golden thread on the breast of his blue uniform, and so on. *But in all this lively detailed sensuous image he cannot alter anything by voluntary effort of imagination.* He has to see the hussar just as the hussar's image has spontaneously appeared and not a whit different; for example, he cannot put him head downwards or make him appear in profile, or take the cap off his head. Although the coloured sensuous image of the hussar is projected outwards to a certain distance, *it is, all the same, not brought into any relation whatever to real objects about the self-observant subject.*" †

Another of KANDINSKY's patients states that his persecutors "force him to see with his 'mind's eye' (and not his bodily eyes) image-pictures of various kinds, almost always extremely lively and detailed, and furnished with all the forms and colours of reality. He sees these images equally well, whether his eyes are closed or open. He is perfectly well aware that

* *Op. cit.*, pp. 44–46. † *Op. cit.*, pp. 49–50.

they are only lively products of his fancy; but as they . . . are mostly repulsive and annoy him by . . . appearing and maintaining themselves before his mind's eye . . . *independently of his will*, so that his utmost efforts of will do not avail to banish them, he is convinced that they are apparitions artificially excited by those about him." It is interesting to notice how his delusions of persecution lead him to interpret them: "to torment him the more, his persecutors purposely stimulate their own fancy and excite in themselves artificially definite and very lively sense-images, and thus force him through rapport to see the same images with the utmost clearness and in unusual detail." *

This patient also suffers from pseudo-hallucinations of hearing. He distinguishes between what he calls "direct speaking"—i.e. auditory hallucinations of insults, ironical remarks, obscenities, etc.—and what he calls "speaking by means of the current," "when he is forced *to hear internally* (*not with his ears*) things which he had not at the moment the least wish to hear; thus he often hears words repeated in this way which he had once actually heard used by his doctors or uttered in his presence long before by some acquaintance of his." †

Pseudo-hallucinations, like genuine hallucinations, of vision are far less commonly observed than those of hearing.

These cases may suffice us. They show us that between hallucinations and mere reproduced ideas there come phenomena which have all an hallucination's vivacity of form, colour, sound, etc.—which have, that is to say, sensuous vivacity—and yet are disallowed the character of objectivity. Of course it is undeniable that percepts do differ from ideas in their far greater intensity and sensuous vivacity; *but the fact that ideas can assume the intensity of percepts without being regarded as percepts proves that percepts must differ from ideas in something else besides intensity*.

Another peculiarity of pseudo-hallucinations is that they occur independently of will, and so possess the character of receptivity which FECHNER claims as a distinguishing mark of percepts. They force themselves on the patient "without the least feeling of internal activity on his part"; "he cannot alter anything

* *Op. cit.*, pp. 31–33.

† This patient supposed himself to be persecuted by secret police, who influenced him from a distance by means of electricity, bringing him into a condition of "electric rapport" with themselves.—*Tr.*

in them by voluntary effort of imagination," as one can in the case of ordinary reproduced ideas. *Nevertheless they do not give the impression of objectivity, which proves that even intensity and independence of will together do not exhaust the difference between percepts and ideas.*

How will it be if we add the presence of " concomitant muscular and visceral sensations " as a further characteristic of percepts ? The sensations meant are such as arise from the activity of sense-organs in perception. Now of course they admit of reproduction just as much as the principal sensations, and accordingly the question will be whether a percept seems to be present whenever the required increase in the intensity of the reproduced principal sensations is combined with a corresponding increase in the intensity of the reproduced secondary sensations. The patients say that they do not see the pseudo-hallucinatory apparitions with their " outer eyes," but somehow with " inner eyes." Now without doubt that is precisely the kind of expression they must use if the intensity of the reproduced secondary sensations is increased in the way suggested. Yet there is still a difference between these reproduced secondary sensations and those arising directly from the functional activity of their " outer eyes " at the moment. *So in spite of the increased intensity of their reproduced secondary sensations they still see the apparitions with " other eyes,"* and consequently we have not yet arrived at a complete statement.

As seen with " inner eyes " the apparitions " seem to stand before the subject who sees them, but at the same time they are absolutely unrelated to the field of vision of the closed eyes; to see them he must divert his attention from the black field; to fix attention upon it stops the appearance of the images." Again, when seen with eyes open they are " not brought into any relation whatever to the real objects about the self-observant subject."

In the first place, then, *visual pseudo-hallucinations are not assigned any position in perceived space, and they appear to the subject as independent of the functional activity of his eyes.*

Not being arranged in the space perceived at any given moment, they cannot depend upon the retinal stimulation or the position of the eyes with its resultant motor sensations, and so they must be regarded as independent of the function of the sense-organ at the moment. Their not being given a position in perceived space is, then, a consequence of their independence of

retinal stimulation and position of the eyes. But it does not follow from this that they need appear independent of these factors to the subject. As a matter of fact they do appear to him independent of the function of his eyes involved in their accommodation to an object upon which attention is directed: so one of KANDINSKY'S patients says that his pseudo-hallucinations vanish if he fixes attention upon the black field of vision of the closed eyes, and that he has to divert his attention from it in order to apprehend them distinctly. But it is of the function of the sense-organ that they seem independent, not of the retinal stimulation and position of the eyes. These factors, I mean, are not considered in abstraction from the total function. The subject finds that he cannot accommodate his eyes to his pseudo-hallucinatory apparitions, and therefore cannot in this way produce the same effect on them that he can when he accommodates his eyes to ordinary objects of vision. So he says to himself, since they do not behave like visual percepts towards the function of his eyes, they have nothing to do with it and are independent of it. If they persist for any length of time, this view of the matter will be still more forcibly impressed upon him by the discovery that they do not alter with other eye-movements or with movements of his whole body, as experience has taught him that objects of vision alter.

Visual pseudo-hallucinations, then, as distinct from visual percepts, are independent of certain determinate functions of the eyes, in consequence of which they are not given a position in the perceived space of the moment; and by the subject they are regarded as independent of ocular function in general. Hence they seem to him subjective in contrast to percepts and hallucinations proper.

Visual perceptions, then, as opposed to pseudo-hallucinations, are characterized firstly by dependence on the function of the eyes at the moment, which results in their appearing arranged in perceived space, and secondly by constant dependence on eye-movements and movements of the whole body, such that the contents of perception alter with movements in a perfectly definite and always constant manner.

But is the subject aware of their dependence on the functions of the eye? and, if so, does this awareness help to determine objectivity-consciousness? The answer is that he is certainly not aware of just that dependence on which localization of perceptual contents is based, but he is aware of the dependence

of his percepts on movements. So this form of dependence occupies a privileged position; it not only exists, but is also subjectively apprehended.

So we arrive at the following statement: *the objective character of visual percepts as contrasted with the subjective character of pseudo-hallucinations and, we may add at once, of ideas is due to perceived contents appearing in definite positions in the perceived space of any given moment and exhibiting a constant dependence, made familiar by experience, upon movements of the sense-organ and of the whole body.*

Of course it is not for us here to discuss the precise way in which the kind of alteration of perceived contents resulting from movement determines their apprehension as contents of perception; and it is also obvious that what we have said of visual perceptions, hallucinations, pseudo-hallucinations, and ideas, holds good of the other senses also, *mutatis mutandis.*

Our next business should be to give an account of *the genesis of hallucinations and of pseudo-hallucinations*, but from what I have said concerning the relation of the two you will understand that if we succeed in explaining the former we shall thereby have implicitly explained the latter as well. So we need treat of the genesis of hallucinations only.

We have made ourselves acquainted with the pertinent facts, and it will be as well to begin by examining the various explanatory theories which have been proposed and inquiring whether any one of them does justice to the data. Should it prove that we cannot say this of any current theory, we shall then have to try as best we can to get clearness on the subject for ourselves.

The theories which have been propounded may be divided into two classes: those of the first class regard hallucinations as wholly centrally conditioned, as due to anomalies in the centres which enter into functional activity in ideation; whilst those of the second class maintain that, in addition to these central factors, peripheral conditions also are effective. These latter theories, by admitting the influence of central conditions, attempt to do justice to the fact that hallucinations depend on ideal contents, a fact which, as we saw, is patent; but they do not think it possible to avoid assuming the co-operation of processes occurring simultaneously in the sensory tracts. The central theories are sometimes called *pure psychical* theories, and those of the second class in contrast are called *psycho-sensorial.*

Those who hold that two sets of conditions are necessary to give rise to hallucinations conceive them as co-operating in one of two ways. Either they suppose that a peripherally occasioned excitation is transmitted along the centripetal tract, and having reached the centres co-operates with an anomaly already existing there to bring about an hallucination. Or they regard the peripheral excitation as itself dependent on the central, and therefore as due to centrifugal conduction. In the one case we have what is called a *centripetal* theory, in the other a *centrifugal* theory.

According to the central theories hallucinations are due to anomalous conditions in the centres for those physiological processes which are correlated with ideational processes. The anomaly is generally supposed to consist in heightened irritability of the centres. This, it is argued, on reaching a certain degree results in so great an increase of the intensity of the processes taking place in the centres that the corresponding psychical processes acquire the distinctness and intensity of perceptions.

This view suffers, however, from a fundamental defect. It gives no account of the origin of that factor which differentiates hallucinations proper from pseudo-hallucinations. Nor is this defect surmounted by supplementing the theory in the way that GRASHEY * has lately suggested. According to him it is necessary to the occurrence of hallucinations that the correlated physiological processes should not only be of abnormal intensity, but should also be caused by pathological stimuli in the centres themselves, and not by excitations passing along the association-paths. This difference in the origin of the central processes he takes to be represented for consciousness in the awareness that the resulting mental phenomenon is unconnected with the train of ideas of the moment. But we saw, when we were discussing the relation of hallucinations to pseudo-hallucinations, that even if we take this awareness into account we do not exhaust the differences of the two kinds of mental process.

I said just now that the perceptual intensity of hallucinations is generally supposed to be due to heightened irritability of the cortical centres. Some writers, however—like JAMES,† MÜNSTERBERG,‡ and PARISH §—have in recent years argued in favour of another view, which traces it back to what they call a state of "dissociation" or "disturbed association," the disturbance

* *Über Hallucinationen.* † *Principles of Psychology*, Vol. II, pp. 122 ff.
‡ *Die Willenshandlung*, pp. 129 ff. § *Hallucinations and Illusions*, pp. 141 ff.

being supposed to result in blocking the nerve current as it flows to certain centres.

PARISH puts the argument in these words: "The discontinuity between the two kinds of processes must mean that when the greatest ideational intensity has been reached some resistance is encountered, which only a new form of energy can overcome. If the current from the periphery furnishes the requisite energy the resulting process assumes for our consciousness a sensory character. We may suppose that this process consists in a new and more violent explosion of the neural matter occurring at a lower level than normally, and we may take it that the resistance to be overcome consists in two factors—first, the intrinsic molecular cohesion of the cells, a cohesion which a sudden inrush of energy from the periphery is able to tear apart, but which is proof against the feebler currents flowing in through the association-paths. The latter might, indeed, effect the same results if they could accumulate in the nerve elements. But—and here we have the second factor in the resistance—this is generally impossible because of the free communication of the cells with each other through the association-paths, in consequence of which the incoming cortical current flows out again, waking the next ideas. The tension in the cells thus never rises to the higher explosion-point. If, however, from any cause the outflow is blocked wholly or in part, the inflowing nerve currents accumulate and reach the maximal explosion-point, the process of perception takes place, and the result is a hallucination."

PARISH also attempts to show that this hypothesis is in consonance with pathological facts which he supposes he has found in works on psychiatry. But I am bound to say that on the contrary the real data of pathology prove the untenability of the theory.

This is clear first of all from the facts as we find them in melancholia. Of this disorder KRAEPELIN * says that it is "not the energy of the psychical processes that is abnormally feeble, but the resistance that is abnormally great," and PARISH accordingly assumes rightly enough that there is in it a condition of "obstructed association." † On the other hand he accepts the statement of earlier psychiatrists that hallucinations are frequent in melancholia, forgetting that they did not recognise Paranoia as a distinct symptom-complex or disease-picture, but counted it as

* *Psychiatrie*, p. 292. † *Op. cit.*, p. 71.

melancholia by what is now universally admitted to have been an error. Otherwise he would not have been able to adduce melancholia as an instance in his favour, for in the disease-picture which alone is now signified by that name hallucinations are entirely absent, or at any rate extremely rare. Now KRAEPELIN'S dictum, on which PARISH relies, is true only of melancholia in the modern meaning of the term. He is taking it in this sense when he assumes the presence of obstructed association; but in assuming the frequent occurrence of hallucinations he is using the term in its earlier signification.

Yet if his theory were true *we should have to expect an unusual number of hallucinations in the disorder we now call melancholia.*

On the other hand we do often find Paranoia complicated with hallucinations *without any trace of a condition of dissociation or obstructed association.*

Lastly, a review of the conditions which intensify the disposition to hallucinate and in part create that disposition, compels us to assume *heightened irritability of the cortex*, for it is common to all of them to bring about such a condition directly or indirectly. I should be glad to learn, for instance, in what other way any one would wish to explain the heightening or even creation of an hallucinatory disposition by morbid or artificial stimulation.

Accordingly we must hold to it that hallucinations require heightened cortical irritability.

SIXTH LECTURE

Theories of hallucination (continued)—My own theory.

TURNING now to the *centripetal theory*, we had better begin by getting a clear notion of the motives which have led to the erection of it. No one can deny that the subject's ideational life exercises a decisive influence upon the content of his hallucinations, but it has also been thought possible to detect a relation of dependence upon peripheral factors. The argument is based first of all upon the observed fact, which I have already illustrated to you, that hallucinations often go with peripheral conditions of irritation in some sense-organ or in the sensory tract connected with it; and it has also been supposed that cases where hallucinatory figures are multiplied when seen through a prism prove that occasionally even an external stimulus acting on a sense-organ is at the bottom of hallucinations.

Those who adopt this position can distinguish three kinds of hallucinations. First, those which follow on an external stimulus; secondly, those which are aroused by entoptic, entotic, or similar processes; and thirdly, those which are due to irritation of the centripetal tract. Some of them emphasize one of these factors most, some another. To show you how entoptic phenomena are supposed to affect hallucinations I will quote you a passage from HOPPE,* who lays most stress on this mode of origin.

"In a dark room, my eyes closed, lying on my right side as if to sleep, but as a matter of fact awake all the time, with the fairly large empty room to my right, this is what I see. The field of vision is quiet, and seems immobile, and all fairly dark—a confused dark mass, here and there black, with streaks and spots in it (dark retinal fatigue-areas on passing from a bright to a dark room, and full blood-vessels.) After a short time several parts of it shift with my gaze; at the points fixated light

* *Allgemeine Zeitschrift f. Psychiatrie*, Bd. 43, p. 448 ff.

sky-blue circles appear, at first small and pupil-like, then larger; they are crowded out again by the dark masses of the blood-vessels, then reappear, increase in size, merge in one another, assume irregular forms, and take a roundish shape or look like broad streaks. Soon all has vanished, and a clear sky-blue fills the whole space. Then in a moment several tiny dark blood-vessel areas reappear; they multiply, and the visual field looks as it did at first. . . .

"I lower my gaze. . . . A grey wall is in front of me, it grows whitish, quantities of fine rays of light stream down from above, then the wall becomes yellowish white, and looks as if it were covered with mortar. Pupil-like discs, some large, some small, appear on it and vanish. Lying on the mortar are massive buttresses of stone; the parts of the mortar obliquely fixed turn into coin-like, flattened, smooth-looking discs (blood corpuscles, one might suppose). Suddenly the field of vision shifts (pulse-movement), I am gazing into a depth, stones and coin-like discs are still there, but of a dark hue, spread out in a way that recalls a dried-up river-bed, the discs due to the pupil re-appear among the stones looking like glass, the part fixated grows brighter, rays of light shoot across, a mass of rock appears, drops bright as water drip down and there is a distinct trickle. All of a sudden a stream of water gushes forth, and to the right appear once more light sky-blue areas; they turn into a lake," on which masts and boats then appear.

Relying on observations like these HOPPE* concludes that the originating cause of visual hallucinations is to be found in "stimulation-phenomena in the retina, due to vascular action and processes of nutrition in the optic nerve substance." But not in these alone; it must also be the case that "the cortical impressions are excited, and consciousness, diverted from every other object, participates in all these phenomena, and, just as in ordinary life, fashions out of the similar data which present themselves figures that it then without noticing regards as products of its own perceptions."

In criticism of this I would remark that all these entoptic phenomena are absent when the eyes are open, the light-stimulus from without having then too strong an effect; and yet we are asked to believe that entoptic stimulation produces hallucinations when the eyes are open. Nor are entoptic stimuli intensified in cases of morbid mentality when hallucinations are frequent.

* *Erklärung der Sinnestäuschungen.*

If hallucinations never occurred except when the eyes are closed, HOPPE'S doctrine would have some claim to a hearing. For the rest, we should then have to abandon the term hallucination, and speak of illusions only; for, as we shall see, this is the right term to use when the content of an erroneous perception is determined by the quality of a sensation, owing to the sensation being similar to and consequently fusing with an idea.

When supporters of the centripetal theory point to the observed fact that hallucinations often go with peripheral abnormalities in sense-organs, and to JOLLY'S experiments with electrical stimuli, we must bear in mind that abnormalities in sense-organs or centripetal sensory tracts are apt to result in heightened cortical irritability, so that it always remains possible they do not do more than contribute in this indirect way to the origin of hallucinations. Moreover, as HAGEN * has justly remarked, the attempt to derive hallucinations from this source alone is confronted by the objection that as a rule examination of the eyes and ears of hallucinating persons does not reveal any visible abnormality.

On the other hand, cases like those of UHTHOFF'S that I quoted prove that anomalies of the sense-organs may produce erroneous perceptions without a relation of similarity between objective and subjective factors being a condition of their fusion.

We shall have to treat these phenomena in more detail by and by. At present I want to say a few words about the argument in favour of the centripetal theory, which is derived from the multiplication of hallucinatory forms when seen through prisms. You may be inclined to think that we have here a striking proof of the dependence of hallucinations on external stimuli. But certain experiments which BERNHEIM instituted with hysterical patients are a warning to us to be cautious in this connection. I will give you a short excerpt from his account of the experiments.†

"We suggest to our hypnotized subjects that upon waking they will see some object, a light for example, one or two metres in front of them. When wakened they see the light. Then we put a cylinder before their eyes which contains a doubly-refracting prism, and which should, therefore, make an object appear

* *Allgemeine Zeitschrift f. Psychiatrie*, Bd. 25.

† *De la Suggestion et des Applications a la Thérapeutique*, pp. 145–8. [I have in the *main* followed HERTER'S translation, *Suggestive Therapeutics*, 1890.—*Tr.*]

double. Now the majority of subjects do not see the light double. Then, if they are made to look at *real* light through the prism, they see it double, and once they know that the prism has the property of duplicating objects they see this duplication in the case of the suggested image also.

" We spoke of ' the majority ' of our subjects, for one of our somnambulists, Rose, after submitting four times to this experiment, saw the image double from the first, without apparently having any previous acquaintance with this property of prisms. We soon made the discovery, which our subsequent experiments will be found to establish, that some of our subjects came to recognise the doubling of the image by inferring it from the duplication of real objects which traversed the field of the prism. . . .

" The following fact may also give some support to this hypothesis. We took two cylinders, each containing a doubly-refracting prism, and fixed one within the other. By making them turn one about the other, we juxtapose the prisms in such a way that at one time objects will be seen doubled, at another quadrupled, without there being anything in the external appearance of the instrument to indicate which is the case. Now the first somnambulist whom we made to look through the instrument—we had suggested that she would see the figure 6 on a white wall, and the instrument was arranged so as to quadruple images, though she was not aware that it could have this effect—did see four images immediately; and when the instrument was so arranged as to duplicate only, she recognised that only two images were present.

" Her replies might well appear remarkable to a superficial observer, but it seemed evident to us that her images were not real, but were suggested by some guiding mark, for she always placed the four images horizontally side by side, while they should have been superposed, two above two.

" To exclude every guiding mark we set her in the open air, and having hypnotized her, suggested that on waking she would see a balloon very high up in the air. The sky happened to be blue and cloudless, and she saw the balloon. We then made her look at it through two glasses alternately, only one of which gave double images. We subjected another somnambulist as well to the same experiment, and were able to convince ourselves that whenever they directed the prism towards the balloon immediately their replies were wrong, and it was only when they

found a chimney, roof, or some other object to serve as a guide that they answered correctly."

So the multiplication of hallucinatory appearances depended on the multiplication of real objects in the field of vision, objects which had nothing to do with the hallucination. I admit that the result may possibly be facilitated by the peculiar state of consciousness in subjects who hallucinate in consequence of hypnotic suggestion, as contrasted with those whose hallucinations are due to morbid stimuli; knowledge of the facts concerning the latter as they might be ascertained in the case of intelligent subjects of visual hallucinations is still a desideratum. But anyhow, after what has been said, we have no right to infer straight away from the fact of multiplied images that the hallucinations are due to peripheral stimuli.

Lastly, I wish to call your attention to another difficulty which confronts all the different modes of deriving hallucinations from peripheral stimulation, and which as yet remains unsolved. If the quality of the peripheral stimuli is such as to resemble the content of the so-called erroneous perceptions, we cannot call the latter hallucinations, as will become clear in the next lecture. On the other hand, *if the peripheral stimuli have not this relation to the content of the hallucination, it remains to be shown how they can evoke it.* We shall return to this question when we have finished the presentment of existing theories.

Let us now turn to *the centrifugal theory*, which is the dominant view in psychiatry to-day. We may as well begin by considering that form of it which has naturalized itself in Germany.

It is assumed that there are spatially separate centres for the physiological correlates of ideas and perceptions respectively. Next it is supposed that an excitation in the ideational centres, the correlate of an idea, may, when the irritability of those centres is heightened, cause by retrograde conduction an excitation in the perceptual centres, especially if the latter also are abnormally irritable. And lastly it is maintained that there corresponds to this excitation of the perceptual centres a psychical phenomenon, determined as to content by ideas, and yet having the character of a precept.

Let us make quite clear how many separate assumptions are involved in this hypothesis. They are four in number.

(1) That the centres for the physiological correlates of perceptual and of ideational processes are distinct.

(2) That the perceptual centres may be stimulated by an excitation centrifugally conducted from the ideational centres.

(3) Either it must be assumed *ad hoc* that the quality of the stimulation is the same when it is initiated by the ideational centres as when it is due to conduction from the periphery; or else we must suppose that a difference in quality does not affect the result!

(4) That centrifugal stimulation of the perceptual centres gives the psychical correlate perceptual character.

The first of these assumptions, that of separate centres, is at least very disputable; we shall return to it in the next lecture. The second we should admit, no doubt, were the first justified. The third is either made *ad hoc*, or alternatively it is false, presupposing the correctness of the doctrine of specific energies in a very crude form. The fourth seems to me untenable, and I will say a word or two about it.

We have seen that perceptual character involves a connexion with the functional activity of some sense-organ at the moment, more especially localization in space depending on retinal stimulation and the position of the eyes, with the resulting oculo-motor sensations. Now suppose a person with his eyes at a given moment in a given position perceiving some object; let him at the same moment experience this centrifugal stimulation of the perceptual centres; how can his hallucination be localized? Localization depends on the retinal stimulation and the momentary position of the eyes; but the complex of his oculo-motor sensations due to the position of his eyes at this moment is totally unconnected with the centrifugal stimulation of the perceptual centres; it is connected, of course, with centripetal excitation of them. Or are we to suppose that the sensational content, due to centripetal excitation, fuses with the content centrifugally aroused, and so the required connexion is realized? But if so, how is such a fusion brought about? I am surprised that these difficulties have not been noticed before.

The centrifugal theory has, however, been developed in a second and preferable form, without the assumptions of separate centres for ideas and percepts, or of excitations transmitted from ideational to perceptual centres, or of perceptual character as depending on such centrifugal stimulation of the latter. On this view perceptual character is due to centrifugal conduction

of an excitation initiated in the cortex to the sense-organ concerned.

Here again, however, we have to insist in the first place that the notion of such centrifugal conduction constitutes an assumption framed *ad hoc*, whereas it is possible, as I shall show you, to frame a theory which shall keep closely in touch throughout with given facts. Furthermore, in the case of vision, hallucinatory figures ought on this theory to follow the movements of the eyes, whereas there are many cases of genuine hallucinations, and not merely illusions, in which this does not happen. I need only remind you of one, that patient of mine who used to see the cousin she was afraid of appearing from behind a cupboard or a tree and looking over the shoulder of somebody she happened to be talking to. In her case there were certainly no sensory data bearing even the remotest resemblance to the content of the hallucinations.

After this critical survey of existing theories we must now attempt a positive statement of the genesis of hallucinations. If we recall the results of our comparison of hallucinations with pseudo-hallucinations, we cannot go wrong in our view of what the problem before us really is. We have to account, not only for the sensational intensity of hallucinations, but also for their objectivity. However, we settled the first point in the course of our critical review, for we showed in the last lecture that in explanation of the intensity of hallucinations we are bound to assume abnormal irritability of the cortex. Our more particular concern will therefore be with the second part of the problem only. We have to show the source of the connexion between objectivity and the momentary function of some sense-organ together with the resulting localization in perceived space.

The genesis of this property of hallucinations will, I think, become evident to you most easily, if you inquire into its determining conditions in cases where hallucinations rest upon an indefinite sense-impression. Do not object that then they are not genuine hallucinations. We shall see, as I have said before, that the term " illusion " is properly applicable only when there is at the root of the erroneous perception an objective impression which fuses with an ideal content because of similarity between them, and thus receives a subjective supplementation which nevertheless seems objective to the subject. In the cases I am thinking of now there is no similarity between sensory and ideal

contents to account for this fusion; nor, indeed, has any one attempted to deal with them in the doctrine of illusions.

On the other hand it is true, as you will understand from our previous line of argument, that we ought to relegate a large number of the phenomena usually reckoned as hallucinations into the sphere of pseudo-hallucinations.

Let us first have another look at that case of CRAMER'S, of the patient who heard his voice issuing from gusts of wind and flowing water and the footfall of passers-by. The voices shared the localization of these objective noises, and were affected by their peculiar characters. Clearly we have here a fusion-phenomenon; an idea obtains objective character by fusing with an objective impression; it acquires the impression's intensity and shares its objectivity. But how does the fusion come about? The patient himself gives us some interesting information concerning the further conditions of these phenomena. He says he does not hear the voices unless he turns his attention to the noises. Now strained attention, as we have seen, is one of the factors that may increase the disposition to hallucinate. Suppose it does so in this case, and the whole phenomenon becomes intelligible. A sense-impression provokes strained attention, this increases the irritability of the cortex, and so whatever idea is reproduced, agreeably to the general complex of consciousness at the moment, acquires sensational intensity. *The idea is thus aroused in this intensity by the sense-impression, and in consequence of this connexion and of the heightened irritability of the cortex it fuses with the sense-impression.*

Accordingly it will not be to the quality of the impression and its similarity to an idea that the fusion is due; it is our attitude towards the impression that occasions the fusion.

The probability of this interpretation will be greatly increased if we take into view a group of cases in which there can be no dispute either about the connexion between our attitude towards the mental equivalent of the sense-impression and the required increase in cortical irritability, or about the conditions determining the content of the hallucinations. I have in mind cases such as that of the patient who suffered from persecution-mania, and was plagued with auditory hallucinations whenever she heard people talking too far off for her to understand what they were saying. That aroused morbid suspicion in her; she fell into a violent affective-conative excitement and used then to catch words of abuse in the conversation which she had not been

able to understand. Here we have a sense-impression accompanied by violent excitement. We may say definitely that the excitement occasioned the increased cortical irritability necessary to hallucinating; but more than that, it also determines the content of the resulting ideas, for the abusive character of the words heard must be due to the character of the excitement. Accordingly in this case an indefinite sense-impression arouses an idea through the mediation of a state of affective-conative excitement, which represents the subject's attitude towards the impression, and under these favourable conditions idea and impression fuse together. There is very often a complication of this kind, of strained attention and an excited state.

In many cases the fusion is with a part only of the impression. Think of the patient who used to see the dreaded figure of her cousin appearing from behind a cupboard or tree or some one she was speaking to. You remember she was dominated by the apprehension that he might have hidden himself and might suddenly emerge from his lair. When she is in this mood the sight of the part of the wall next to that cupboard in her room provokes violent excitement in her and hallucinatory vision—she sees his face appearing from behind the cupboard. But his face is not of the same colour as the wall, so that fusion does not take place with that part of the impression. The incomplete character of the fusion in such cases must, I think, be due to the fact that the part of the impression which does not fuse stands in the background of consciousness. In the fixation-point is, of course, not the colour of the wall against which the face appears, but the perception of that definite locality, and it is with this that the idea fuses.

Yet it is not always our attitude towards a sense-impression that is the condition of the origin of hallucinations. There are other cases where impressions give rise to hallucinations because the corresponding physiological excitation-process, quite independently of its quality and of any reaction of that complex magnitude the subject, but simply in virtue of its intensity, as a rule its abnormal intensity, results in a corresponding increase in the irritability of the cortex, and then fuses with whatever idea arises from the general conscious complex at the moment.

This is illustrated, for instance, by that case of SANDER'S in which the noise of water flowing into a bath provoked auditory hallucinations. In such cases, when an hallucinatory disposition is there already, a simple impression of the sense concerned is

enough to stimulate the already irritable centres sufficiently to occasion hallucinations. More often, however, this results from *morbid* stimulation of a centripetal sensory tract, as in that case of a patient with scotoma which I quoted from UHTHOFF, where localization depended on the position of the scotoma and the visual hallucinations accordingly followed the movements of the eyes. Finally, we should take here those cases of visual hallucinations in which morbid stimulation or hyperæsthesia of the centripetal tract from the eye-muscles or of the related centres produces corresponding increase of the hallucinatory disposition, as was probably the case with that patient of SEPPILLI'S whose hallucinations were excited by a definite movement of the eyes, and with similar patients of HENSCHEN'S.

SEVENTH LECTURE

Illusion and Assimilation: Illusions of the different senses: Degrees of Illusion: Conditions of Illusion and Assimilation—Are there separate centres for the correlates of sensational and of ideational processes? Cases bearing on this question.

IT is best to introduce a discussion of *Illusions* by a short sketch of its parallel in normal psychology, Assimilation. WUNDT speaks of Assimilation when "elements of previous ideas are revived by an idea entering consciousness afresh, so as to combine with it to form a single simultaneous idea." * In the process of perception Assimilation consists in a sense-impression reviving an associated idea and fusing with it into one perceptual whole. The reproduced ideas are called *assimilating* elements, and the sense-impressions are said to be *assimilated*. A process of this kind takes place, for example, when we listen to a speech. We do not really hear the several words in such completeness as we suppose; we involuntarily supplement what we hear. Another example of this supplementation of the perceived is given when we overlook printer's errors; guided by the context we unconsciously substitute the right word for the wrong.

Thus we can distinguish an objective and a subjective element in perception, and we call it illusion when the subjective factor plays an abnormally prominent part in the process of assimilation.

I shall begin by treating of the *illusions of the several senses*, as observed in the insane, and shall then proceed to speak of their degrees and determining conditions. Now illusions can be most sharply distinguished from hallucinations in the senses of *sight* and *hearing*, and consequently I may restrict my description of them to these two senses.

A melancholic patient of mine took the whistling of locomotive engines for the cries of her children being murdered, and the

* *Grundzüge der physiologischen Psychologie*, 4th ed., p. 439.

rumbling of passing drays she declared was thunder, which she connected with her own wickedness.

Visual illusions frequently take the form of false identification of people. One patient used for many months to mistake me for a neighbour, who, she said, had cheated her. KAHLBAUM* once treated a melancholic patient " who took one of the patients about him for his son and two others for sons-in-law, and could not be moved from this notion, although he had opportunity to observe and examine his fellow-patients very closely—nay more, although he could compare them directly with his true relatives when the latter visited him in the institution. His belief once pronounced, he held to it firmly, and explained away his visitors as frauds, merely expressing surprise that the " play-actors " could get themselves up to resemble his relatives so closely. Nay, one time that his wife came to see him with his son, he declared that she too was taking a part in the comedy of fraud they were playing on him, called her an actress, and persisted in this obstinate error even though at the Director's request he subjected his wife to a minute examination, which she passed quite sufficiently well. After repeated visits it came to his threatening his own relatives with his stick for trying, as he said, to bamboozle him. Nor must I omit to mention another striking point about this case, that when one of the patients whom he wrongly identified left the asylum, another one became the subject of the confusion. As to any points of resemblance, such as might have occasioned a passing mistake, I should say that there may have been *some similarity in certain general characteristics*. One of the sons-in-law was a big strong man, of middle age, the other far younger and more powerful, with a mass of brown hair, whilst the son was less strong and had black hair; and these characteristics were to be found in the patients whom he confused with them. But they are not enough to account for the false identification, considering how striking the differences were both in certain definite features and in all other characteristics, and considering too the patient's intimate acquaintance with the persons concerned, and the opportunities afforded him of observing and minutely examining them without interference from any one. I should add that he could recognise and name other people quite correctly, people with whom he had been acquainted previously, but whom he did not know so well, when he happened to see them in the asylum;

* *Die Sinnesdelirien.*

and similarly he used to identify the officers of the institution rightly."

These mistakes about persons are by far most commonly seen in patients with maniacal excitement, as has been shown by SNELL*, and after them perhaps in the melancholic.

Occasionally we find the content of illusions varying with the subject's mood. Thus ALT † reports that a patient of his in her melancholic condition had consistently taken him for a certain person, the idea of whom was combined in her mind with a feeling of depression; but when she passed into a maniacal condition she identified him with another person, the idea of whom was combined with cheerful feelings.

Now a word or two about *degrees of illusion*. The degree of illusion depends on the distinctness or indistinctness of the sense-impressions which help to occasion it. When the impressions are distinct, illusion of course means *ceteris paribus* a greater degree of abnormality, and it frequently happens that in the course of a disorder illusions which were at first confined to indistinct impressions subsequently attach themselves to those that are distinct as well, owing to increased irritability of the cortical centres. We may describe these two degrees of illusion by saying that *in the one a person hears (sees, etc.) what is not there; in the other he does not hear (see, etc.) what is there, and does hear (see, etc.) what is not there.*

Illusion, as we have seen, includes an objective and a subjective element, and we may divide the *conditions of illusion* into two classes accordingly; those of the one class strengthen the subjective element, and those of the other weaken the objective. I will speak first of the factors that result in *enfeeblement of the objective element.*

(1) The first of them is *indistinctness of sense-impressions.*

LEUBUSCHER ‡ reports a case where the patient often used to take himself to be a girl with whom he had once been in love; his own features seemed to him to have turned into her features "whenever he saw them reflected from the surface of a window-pane, though in a mirror he used to see his own face." Indistinctness of impressions is a main factor of illusions in alcoholic

* *Die Personenverwechselung als Symptom der Geistesstörung (Allg. Zeitschrift f. Psychiatrie*, Bd. 17).

† *Das Symptom der Personenverwechselung (ibid.* Bd. 44).

‡ *Über die Entstehung der Sinnestäuschungen.*

delirium; in this condition many patients will never manufacture their sense-impressions into illusions unless they are at a certain considerable distance from the object, and when they are brought nearer to the object their illusion vanishes, and they take the impression for what it is. You will find instances of this in that article of LIEPMANN'S * which I have mentioned before.

(2) Another cause of illusions in alcoholic delirium is *deficient attention*: the power of concentrating attention is usually much weakened, and we sometimes find that, if the patient can be induced to direct his attention keenly upon the impression for a moment, his illusion vanishes.

(3) Lastly the objective element is weakened by *short duration of the impression.*

Now as to the *conditions which strengthen the subjective element*:—

(1) The first consists in *emotion.* Illusions, it is observed, are most frequent in those mental disorders which are from their nature mostly called genuine affective disorders.†

(2) In a similar way *tense expectation* promotes illusions.

(3) We have seen, too, that the disposition towards illusions is strengthened by an *increase in the irritability of the cortical centres*, so that illusions come to attach themselves to distinct as well as to indistinct impressions. So we must reckon this as a further condition promoting the occurrence of illusions.

(4) Illusions, we found, are commonest in states of maniacal excitement, less common in states of melancholy. Now in slight mania there is combined with emotion increased facility of reproduction, whereas in melancholic states reproduction is distinctly impeded. Hence we must admit an *increase in facility of reproduction* as a condition favourable to illusions.

The objective element, then, may be weakened by indistinct impressions, or by deficient attention, or by short duration of impressions. The common element in these three factors is easy to discern. *They all conduce to neglect of the points of difference between objective and subjective elements*, and so promote illusion.

It is of more interest psychologically to trace the strengthening of the subjective element. Two of the factors concerned, states

* *Archiv f. Psychiatrie*, Bd. 26. † *Gemütskrankheiten.*

of emotion and states of tense expectation, go together for this purpose. Let us look first at cases where these two factors are both related to a definite idea. Where there is a definite expectation, where expectation relates to a definite idea, we are compelled to regard the facilitation of illusions as dependent on that idea's being in the foreground of consciousness, which results in its having a better chance of fusing with an objective impression; and the same result will be brought about in the same way where an emotion is related to a definite idea. You will remember that we were driven to adopt a similar view when propounding our theory of hallucination.

But how about the case of an indefinite expectation or of an emotion related, not to a definite idea which afterwards enters into the fusion-process, but either to another idea more general than it or not to any idea at all? What is there then to promote the chances of the idea that fuses? This, we shall have to reply, that the general state of consciousness under the circumstances is such as to strengthen the tendency to the reproduction of that idea, so that it will be reproduced by the objective impression more easily than under ordinary circumstances.

Before going on to speak of the remaining conditions of illusion, I want to refer particularly to a difference in the genesis of illusions where there is present a state of definite expectation and of emotion correspondingly complicated on the intellectual side, as contrasted with cases where expectation and emotion do not relate to a definite idea. The difference will probably have struck you as I was developing the last part of my argument. When expectation and emotion have not got a definite reference, the objective element or sense-impression to which illusion attaches itself is primary and reproduces the subjective element, the whole then fusing into a percept. But when they have a definite reference, the subjective element is primary, being given before the objective, though of course the illusion depends all the same on a transition from objective to subjective element—a transition which, like a real reproduction, presupposes a bond of association between them. SULLY * would term the former kind of illusion *passive*, and the latter *active*; KRAEPELIN † distinguishes them as *illusions of perception and of apperception* respectively.

* *Illusions*, p. 45.

† *Über Trugwahrnehmungen* (*Vierteljahrsschrift f. wissenschaftliche Philosophie*, Bd. 5).

Now for the remaining conditions which strengthen the subjective element, that is to say, increased irritability of the cortical centres and increased facility in the sequence of ideas. The former is bound to result in abnormal intensity of the physiological correlates of ideas, and so we may put it that *a rise in the intensity of the correlates of ideas favours the entry of the processes of fusion which are required for illusion.* So also, lastly, does the increased facility of reproduction which results from exaltation of mood; but we may leave a more precise account of the effect of such exaltation upon consciousness until we come to treat of the influence that affective states exercise upon the course of reproductions.

The importance to normal psychology of these discussions on illusion and its conditions depends, as you cannot fail to see, on the fact that the processes of assimilation and illusion differ only in degree, so that all the while we have implicitly been determining the nature and conditions of the assimilative process as well. But it is all much more plain in illusion than in normal assimilation.

That finishes what I have to say of hallucinations, pseudo-hallucinations, and illusions. We may now pass on to consider certain anomalies which help us to decide the question whether there are separate centres for the correlates of sensational and of ideational processes respectively. We shall find that there are different groups of cases bearing on this problem. To start with I will take a case where the perceptual function was abolished, but the power of reproducing ideas was retained.

The patient in question was a woman in an hysterical condition of mental fog. Her sensibility was as follows: tactual sense, intact; power of localization, could not be tested; sensibility to pain, absolutely abolished; motor sensibility, intact; sensibility to temperature, could not be tested; visual sensations, abolished; hearing also lost—no reaction to sudden loud noise; sense of smell, could not be tested; sensibility to tastes, feeble.

She was taken out of her bedroom up the corridor to a considerable distance from her bedroom door. She endeavoured to get back; but, being unable to see, she tried to find her way by groping. On reaching a projection in the passage-wall nearly opposite her room—there is only one such projection there—she went over to the right wall, making groping movements with

her hands in the air, but when she got across to the wall she at first shrank back in surprise. She then groped her way thus: she went first to one end of the wall and then tried to find the door of her ward among the various doors along the wall by feeling after the recesses which serve to give access to the heating-apparatus, and in this way she found the right door at once, plainly judging by the number of recesses.

The principal point to observe here is that this patient showed herself *able to reproduce visual ideas*—for, of course, it was only through their assistance that she succeeded in finding her way by means of touch—*although she was incapable of visual sensations, and that not owing to any derangement of the peripheral sense-organ nor of the centripetal conduction, but owing to a purely central derangement*, for the mental fog of hysteria depends wholly on central conditions.

When JANET maintains on the strength of hypnotic experiments that loss of sensibility in any sense brings with it loss of the power of reproducing corresponding ideas, I cannot help thinking that unintentional suggestion must have been operative, as is often the case in such experiments.

In my patient visual sensibility was lost, but the power of reproducing visual ideas was retained; on the other hand, in a case of CHARCOT'S visual representations were very weak, whilst visual sensations seemed normal. This patient of CHARCOT'S had previous to his disorder been remarkable for the unusual development of his visual ideas.

"His memory," CHARCOT'S pupil BALLET reports*, "was above all a visual memory. He no sooner thought of persons or things than the representations of their features, forms, and colours appeared before his mind's eye with as much precision and intensity, so he assures us, as if they were real objects. If he wanted to recall a fact or a figure contained in his voluminous polyglot correspondence, he found it at once in the letters themselves, which appeared before him in their exact wording down to the least detail, irregularity, and erasure. At school when he repeated a lesson, or later if he recited a passage from some favourite author, to have read it two or three times sufficed to fix the page in his memory with every line and letter on it, the passage at once appeared to him quite distinctly, and he recited it by mentally reading it off. To do a sum in addition he had

* *Le Langage intérieur et les diverses formes de l'aphasie*, p. 43 and pp. 101–2. [*cp.* JAMES, Vol. II, p. 58.—*Tr.*]

only to run down the columns of figures set out before his mind, even if they were from a large book, and he computed the total without hesitation at once, without having to trouble over the detailed adding of figure to figure that ordinary men need to go through. Similarly with all other arithmetical operations. He could not recall a passage in a play he had seen without calling up every detail of the theatre. . . . His auditory memory was always defective, and took second place with him. Among other things, he had never any taste for music."

In consequence of a malady his power of reproducing visual ideas was subsequently weakened, to the extent described by BALLET in the following passage, whilst his visual sensibility appeared intact.

" The very day that a morbid disorder effaced his visual images his internal speech was profoundly affected. ' To-day,' runs the record, ' he has to undo his papers like other people in order to find the information he wants (though he used to recall it at once through his power of mental imaging), and he has to rummage among them before he can find the passage he is looking for. He can remember only the first few lines of the Iliad, and in reading Homer or Virgil or Horace he, so to say, gropes along. In adding, he whispers the figures half aloud—before his malady he used to read them off in his mind—and he has to proceed by adding a few figures at a time. If he wishes to recall a conversation, or anything that has been said in his hearing, he realises that he must now apply to his auditory memory, and that costs him an effort. When he succeeds in recalling words and expressions, they seem to echo in his ear, an altogether novel sensation for him. Since this great change has taken place in him, if he wishes to learn anything by heart, a series of phrases for example, he must read them aloud several times, and so impress his ear; and when he subsequently repeats what he has learned, he has a very distinct sensation of internal hearing preceding the utterance of the words, a sensation which was formerly unknown to him.' "

Another very significant case in this connexion is one reported by WILBRAND *, and in view of its importance I think it will be worth while quoting it in considerable fullness.

" A woman, sixty-four years old, always healthy before, and in particular possessed of a good visual faculty, suddenly has a stroke. On recovery there remain the following persistent

* *Ophthalmiatrische Beiträge zur Diagnose der Gehirnkrankheiten*, and Seelenblindheit.

anomalies of vision. Though she was born in Hamburg and has lived there for years, so that before her stroke she knew every detail of its topography, she is now unable to find her way about the streets even moderately well. Yet her general intelligence is practically unaffected." She says herself: "I can represent many streets to myself. For instance, I was walking recently with my companion along R. street, and I knew that Dr. H. lived there, but for me to find my way there unaided is absolutely out of the question, or even to say where it begins and where it ends." She has often travelled and has spent much time in Copenhagen, and "when I shut my eyes," she says, "and transplant myself to Copenhagen, I see the streets before me quite plainly. Then again I can see the castles on the hills along the Rhine in my mind. But if I were standing there, and were looking at the town of Copenhagen or the Rhine valley with my eyes open, I should not know where I was. Mentally, with my eyes shut, I could walk about Hamburg all right; but when I am actually standing in the street, I am completely bewildered. When my eyes are shut I see my old Hamburg before me, or at any rate a great part of many streets."

Everything she sees has assumed a strange aspect. Even the pieces of furniture in the room where she spends her days seem quite different to her; as she puts it, they give her an impression of strangeness, instead of seeming familiar. What the change consists in she cannot tell, for *she sees everything quite distinctly* and boasts of her good sight. She is often much troubled by fear of mental disease, because on going into her room from outside she thought she had got into a strange room belonging to some one else, it appeared so odd and unfamiliar. At that time, as she relates, she said to her doctor: "To judge by my condition, man sees more with his brain than his eyes. . . The eye is merely the instrument, for *I see everything clearly and distinctly, but I don't know what the things I see are.*"

"The people I have met since I fell ill leave no impression on my memory; if I meet them next day in the street, I do not know them."

Asked whether auditory impressions are more permanent, she replied: "I can quite well recall the sound of my visitors' voices and their dialect, and shall recognise them easily by that means." Her friends report that even long after her illness, when she had been out of bed for a considerable time, she could *never* recognise any one coming into the room till she asked

who was there and heard her visitor's voice, and then she knew who it was. Another point you should notice about her power of vision is that she used to complain of often overlooking things.

Well, the principal points in this case are, firstly, that she sees objects clearly and distinctly, but does not know them. She has percepts, but the processes of reproduction, which normally bring about recognition of perceived objects, do not annex themselves to her perceptual processes, although she can still reproduce earlier visual sensations when they are suggested by other ideas; for it is only as regards the sense of sight that the connexion between her percepts and ideas is disordered.

Secondly, she has practically lost all power of accumulating new material for visual memory—again an abnormality confined to one sense, for her auditory memory, for instance, is good even for the most recent experiences.

Thirdly, she is remarkably apt to overlook things, a peculiarity which was explained by the examination of her eyes, for WILBRAND found in her left lateral homonymous hemianopsia. That is to say that on testing her field of vision he discovered the left half of it to be gone in both eyes, the inference being that the visual region of the right hemisphere was incapacitated. On the other hand, the right half of each eye retained its normal acuity and was intact except as regards a small area. The autopsy subsequently confirmed his hypothesis as to the seat of the morbid process.

These three cases then compare with one another as follows:—

(1) In my case visual sensibility is abolished, reproduction of visual ideas preserved.

(2) In CHARCOT'S case visual reproduction is greatly reduced, visual sensibility preserved.

(3) In WILBRAND'S case both functions seem to be intact, and only the connexion between them abolished.

I am not aware of any other facts which appear to tell so strongly in favour of the hypothesis that the correlates of sensational and those of ideational processes are connected with different centres, though I must not forget to advise you to read up HENSCHEN'S cases in addition. Yet I think I can show that even these facts do not prove the hypothesis true; *they merely indicate how far the two functions are independent.*

First as to loss of any special sensibility without loss of the

corresponding reproductions, this abolition of one function whilst the other remains intact is no doubt easy to understand if we assume that the physiological correlates have their seats in separate centres; but it does not in any way compel us to take that view. May not the fact rather be that the physiological processes correlated with one function are arrested, whilst those correlated with the other meet with no obstruction, although situated in the same centres? I see nothing against that possibility; certainly CHARCOT's case contributes nothing new in this connexion. The facts of WILBRAND's case might indeed appear to furnish a more decisive argument in favour of distinct centres, but LISSAUER * has rightly insisted that they can be otherwise explained by assuming functional derangement of the transcortical tract connecting the centres for eye-movements—situated in the angular gyrus, if WERNICKE's † researches are correct—with the centres for retinal sensibility. Normal spatial perception requires this path to be intact, but at the same time it would be more prudent to speak of disturbance of the connexion between these centres, and not definitely of lesion of the transcortical tract.

* *Seelenblindheit* (*Archiv f. Psychiatrie*, Bd. 21).
† *Archiv f. Psychiatrie*, Bd. 20.

EIGHTH LECTURE

Aphasia and its kinds—Theories of the mechanism of speech examined: my own view.

We have now concluded our treatment of the anomalies of perceptual process and of those abnormal cases which throw light upon the disputed question whether there are separate centres for sensation and for ideation: and in accordance with our plan we proceed next to discuss the anomalies of ideation, beginning with Aphasia.

In the year 1861 Broca discovered that lesion of the third left frontal convolution involves loss of speech, though it may leave all other mental functions absolutely intact. Let me quote his two famous cases.

"A man called Le Long, 84 years of age, had a stroke accompanied by loss of consciousness. From that time till his death 18 months later he suffered from aphasia, without any other paralysis, his intelligence, memory, and understanding remaining sound. He could execute correctly all voluntary movements of tongue, lips, etc., and managed to make himself understood by means of gestures and of five words, which, however, he mangled somewhat, though he continued able to articulate their component sounds." The subsequent autopsy revealed a focus of softening confined to the posterior third of the second and third left frontal convolutions.

The other case is that of "an epileptic, Leborgue, who went by the name of Tan, because he answered all questions with that syllable. From his 30th to his 40th year he suffered from aphasia, without hemiplegia, and retaining the power of communicating with others by signs. Whether aphasia had set in slowly or suddenly could not be discovered; at a later date it became complicated with gradually progressive hemiplegia of the right limbs and with slight weakness of the right cheek, but he could always move his tongue freely. Besides the syllable

'tan,' Leborgue could, when angry, ejaculate a lengthy oath. He died at the age of 51. The autopsy revealed a large area of softening in the left frontal cortex, the left insular lobe, and the temporal convolution next to the fissure of Sylvius, and reaching far into the corpus striatum."*

BROCA makes it highly probable that the lesion started from that posterior half of the third frontal convolution which was wholly destroyed, and was confined to that part for a considerable time before spreading to the other regions affected.

At first BROCA's statement was often contradicted, for derangement of speech was found to follow on lesion of other parts of the brain as well; but that was due to a misunderstanding. The assertion that lesion of the third left frontal convolution produces derangement of speech does not imply that all such derangement depends on that particular lesion. BROCA's statement only says that the normal functioning of the centres in this convolution is an indispensable condition of normal speech; it remains possible that normal speech may require normal functioning on the part of other centres as well. We shall see in a moment that this is actually the case.

In one respect, however, BROCA's statement was afterwards found to need rectification. It was discovered that in left-handed people lesion of the third left frontal convolution has no ill effects on speech, and similarly with lesion of the corresponding convolution of the right hemisphere in the case of right-handed people. So what BROCA said holds good only of the right-handed, the fact being that they make more use of innervation-centres in the left hemisphere, whilst the left-handed make more use of those in the right.†

A second indispensable condition of normal speech was discovered in 1874 by WERNICKE‡, who distinguished from BROCA's aphasia another type, in which the power of voluntary speech is preserved, but the power of understanding speech is lost; it follows, as he found, on lesion of the first temporal convolution. Thus in BROCA's type understanding of speech is preserved, but the power of speaking abolished; in WERNICKE's type the power of speaking is preserved, but the power of understanding speech abolished. The former is called *Motor*, and the latter *Sensory*, aphasia.

* Quoted from KUSSMAUL, *Störungen der Sprache.*

† For further details cf. KUSSMAUL, *op. cit.*

‡ *Der aphasische Symptomencomplex.*

All this shows that the physiological processes, which are the correlates of "*auditory verbal images*," take place in the first temporal convolution, whilst the correlates of "*articulatory motor images*," as they are called, take place in the third left frontal. Now the first temporal convolution is the area of the cortex where the auditory nerve has its origin, whilst it is in the third left frontal that the centres for the innervation of the muscles of speech are situated.

From both these types WERNICKE further distinguished what he calls *Conduction-aphasia*. The two centres mentioned must, he argued, be connected by a nervous conduction; for how else is mimetic repetition of words possible? In such mimetic speech an auditory impression causes stimulation of the centres that govern the speech muscles, and this means that the nervous excitation in the central termination of the auditory nerve is transmitted to those centres. Now suppose the path which is postulated to account for this transmission interrupted, derangement of speech must ensue, and this derangement is WERNICKE'S Conduction-aphasia, which is supposed to depend on lesions in the insular region.

Fig. 1 is a schematic representation of the lesions which occasion these different derangements of speech, *a* standing for the

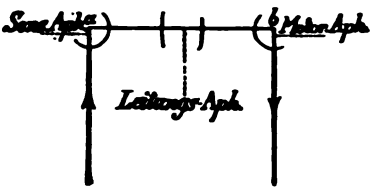

FIG. 1.

auditory image centre, and *b* for the centre for articulatory motor images.

But this schema of WERNICKE'S is incomplete, and it was another schema of LICHTHEIM'S* that first paid due regard to the centres involved in voluntary speech. LICHTHEIM supposes spontaneous speech to start from what he calls a *concept-centre*. It is, however, better to speak of a centre or centres for ideas† of objects, the plural being more accurate, since the idea of an object that I want to name is based upon sensations of many

* *Über Aphasie* (*Deutsches Archiv für klin. Med.* Bd. 36).

† Or "representations" (*Vorstellungen*). For brevity's sake I shall occasionally translate by "object-centres."—*Tr.*

different kinds, whose physiological correlates are known to belong to different centres.

LICHTHEIM, then, supposes that in spontaneous speech an excitation starts from a concept-centre and is propagated thence to the motor centre, whilst the understanding of spoken words involves a connexion between auditory and conceptual centres. So he arrives at the schema of Fig. 2, where, *A* standing for the auditory centre and *M* for the articulatory motor centres, the line *aA* may symbolize the centripetal path and *Mm* the centrifugal path to the muscles of speech. Mimetic repetition then will take place along the path *aAMm*. Now suppose *B* represents the concept-centre, there must exist a centrifugal path from *B* to *M* and a centripetal from *A* to *B*.

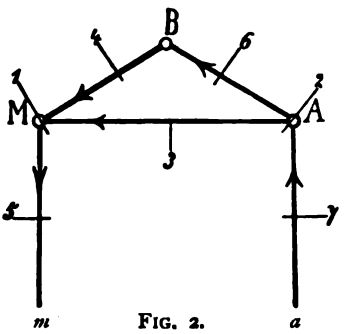

FIG. 2.

It follows from this schema that besides the three types of aphasia already mentioned there must be four other types, depending respectively on lesion of the paths *B–M*, *A–B*, *aA*, and *Mm;* and LICHTHEIM deduced *a priori* the symptoms of the different derangements of speech with which we shall become acquainted in a moment, and then produced instances of each of the types he postulated, so that his theory was widely approved and accepted. WERNICKE* afterwards introduced a useful terminology, substituting for LICHTHEIM'S Aphasia 1, 2, 3, etc., the names cortical aphasia when the derangement originates in *A* or *M*, sub-cortical when its seat is peripheral relatively to *A* and *M*, and transcortical when it is more central than *A* and *M*. So he speaks of

cortical sensory aphasia, when the lesion is in the auditory centre ;

* *Die neueren Arbeiten über Aphasie* (FRIEDLÄNDER, *Fortschritte der Medizin*, Bd. 3 *und* 4.)

cortical motor aphasia, when it is in the articulatory centre ;

subcortical sensory aphasia, when there is interruption of the centripetal path to the auditory centre ;

subcortical motor aphasia, when there is interruption of the centrifugal path from the articulatory centre ;

transcortical motor aphasia, when there is lesion of the path between conceptual and articulatory centres ;

transcortical sensory aphasia, when there is lesion of the path between auditory and conceptual centres ; and

conduction-aphasia, as I have said, when the path between auditory and articulatory centres is interrupted.

I will now give you the symptoms characteristic of these different types.

Cortical motor aphasia is marked by

(1) abolition of spontaneous speech, which requires an intact path from conceptual centre to periphery by way of the motor centre [*B–M–m*] ;

(2) abolition of mimetic speech, which requires the path *a–A–M–m* ;

(3) preservation of the power of understanding speech [*a–A–B*]; and according to these writers

(4) abolition of the power of writing, or Agraphia ; but I postpone the treatment of derangements of writing and reading.

In *cortical sensory aphasia*, from lesion of the auditory centre, there is

(1) abolition of the power of understanding speech, which needs the path *a–A–B*, and obviously also

(2) abolition of mimetic speech ;

(3) preservation of spontaneous speech, which is held to take place along the path *B–M–m*. But observation shows that though spontaneous speech is not abolished in cases of this kind, paraphasia, or substitution of wrong words, occurs, a phenomenon whose causes we shall have to discuss by and by in some detail.

Transcortical motor aphasia, resulting from interruption of the path from *B* to *M*, is marked by

(1) abolition of spontaneous speech, as is evident from what has been said ;

(2) preservation of the power of understanding speech [*a–A–B*]; and

leave the power of understanding speech intact, and so we have the symptoms of " transcortical motor aphasia."

My attitude towards this controversy is as follows. In the first place I cannot admit that HEUBNER'S case proves spontaneous speech to take place only via the auditory centre. Abolition of spontaneous speech is one of the symptoms of HEUBNER'S case, but it must be attributed to the minute focus in the motor region, which may very well result in reduced functional power in that region, and so in loss of speech. The case is therefore quite intelligible on the assumption that the speech-impulse proceeds via the auditory centre ; but it is also quite intelligible if the speech-impulse passes direct from conceptual to motor centre, unless indeed we have a right to suppose that the minute focus mentioned did not in any way impair the function of the direct path by some sort of action at a distance, and so long as those who believe in a direct connexion do not obstinately maintain that loss of spontaneous speech without loss of mimetic speech is *always* due to lesion of that path. If we allow that these symptoms may sometimes be conditioned in another way, viz. by diminution of the functional power of the articulatory centre, then the facts of HEUBNER'S case need not make us abandon the hypothesis of direct stimulation of the motor by the conceptual centre.

For my part, in deciding from what direction the impulse reaches the centre for articulatory motor images in spontaneous speech, I start from the discovered facts of cortical sensory aphasia. FREUD is wrong in saying that if a direct path existed from conceptual to motor centres this type of aphasia (where there is lesion of the auditory image centre) would necessarily be marked by derangement of mimetic without derangement of spontaneous speech. All he has a right to say is : " without abolition of spontaneous speech." His inference rests on the tacit presupposition that, if there were a direct connexion between the two centres, it would have to be their only connexion, an assumption which is absolutely unproved, though, as I have indicated, usual. It is unfortunate that discussion has always kept to alternatives : Does the speech-impulse pass to the motor centre direct, *or* does it pass through the auditory centre ?

The facts of cortical sensory aphasia furnish two conclusions :—

(1) *The auditory image centre co-operates in spontaneous speech,* for elimination of the centre involves *derangement* of this function ; but

(2) *There is also a direct connexion between conceptual centre and the centre for articulatory motor images*, for the derangement takes the form of *paraphasia only, and not of total abolition* of spontaneous speech.

The only question remaining is how we are to conceive this co-operation of the auditory centre. The simplest hypothesis is that it receives an excitation from the conceptual centre and transmits it again to the motor centre, which will thus be stimulated from two directions—first from the conceptual centre direct, and secondly along the indirect path through the auditory centre.

The co-operation of the auditory centre has, however, been conceived in another fashion. It seems possible in the abstract that the motor centre, being directly stimulated from the conceptual, should then itself excite the auditory centre, and that then the excitation of the auditory should in some way react upon the motor centre [*B–M–A–M*]. That this view is not really possible I shall show you by and by when I come to examine the conception of paraphasia ; and, taking it as rejected, we find it proved by pathological cases that *the process of spontaneous speech results from the co-operation of two causes, articulatory motor images being aroused first by ideas of objects directly, and secondly by auditory images which have been themselves aroused by the said ideas of objects.*

We inferred a direct connexion between the centres for ideas of objects and the centre for articulatory images from the fact that lesion of the auditory image centre does not result in entire abolition of speech ; and our procedure may have to face the following objection. A verbal idea is admittedly composed of the auditory image of the word's sound, the visual graphic image of its written or printed appearance,* the articulatory motor image, and the graphic motor image. Well, it may be said, if the auditory image centre is injured, and yet the power of speech is not entirely lost, perhaps the visual image or the graphic motor image serves as intermediary, being reproduced by the idea of an object and itself reviving the articulatory image. But in a large number of cases of cortical sensory aphasia we can eliminate the influence of these supposed connexions. Thus we can exclude graphic motor images because we find nothing more than

* Literally, "the graphic image of the word." In what follows the term "graphic image" means a visual image, and so with "graphic image centre."—*Tr.*

paraphasia in cases of this type where the patients are ill-educated and scarcely able to write at all, having learned to write with difficulty in childhood and in course of time having as good as lost the art through lack of practice. Such persons would exhibit a more profound derangement of speech if they made use of graphic motor images in speaking; and the same argument from the disproportion between their powers of speaking and writing holds good against the supposed use of the path through the visual image centre.

But more direct evidence of the effectiveness of the path leading straight from object-centre to articulatory centre is provided by totally illiterate patients who are suffering from cortical sensory aphasia. SEPPILLI describes a case of the kind, where the patient "does not understand any word or question, and accordingly her answers have no connexion with the questions put to her; yet she does answer. She indicates objects with names that are wrong but resemble the right names in sound." Occasionally she utters short sentences quite correctly. (I am quoting from NAUNYN'S collection of aphasic cases,* which I recommend you to consult.) The autopsy revealed softening of the superior temporal convolution, and of the superior third of the second temporal convolution, with slight softening in the first frontal and in the anterior end of the second and third frontal convolutions. *The base of the third frontal was normal,* and the softening was confined throughout to the cortex. These facts compel us to assume direct revival of articulatory motor images by ideas of objects.

I must say a word about the comparative valence of the direct and indirect "paths" to the articulatory image centre. Were the association of ideas of objects and articulatory images intimate, it would suffice, as other psychological observations show, to occasion prompt reproduction of the latter. As this is not the case, *we must attribute dominant importance in spontaneous speech to the indirect path by way of the auditory image centre.* We are forced to do so since no case of cortical sensory aphasia is known in which the derangement of spontaneous speech does not occur; but at the same time the strength of the direct connexion may very likely vary in different people.

When patients are adepts at writing the co-operation of visual and graphic motor images also is a possibility to be considered.

* *Über die Lokalisation der Gehirnkrankheiten* (*Verhandlungen des vierten Kongresses für innere Medizin zu Wiesbaden*, 1887).

We shall see by and by that the latter can be a cause of speech in pathological cases when all the other lines of connexion are barred; but in normal speech they could not come into operation quickly enough, as will become clear from our discussion of the mechanism of writing.

As to visual graphic images, one might on first thoughts be inclined to deny them any importance in this connexion, on the ground that speech is developed before they come to be present in consciousness. But that does not prove that they may not subsequently acquire great influence upon the mechanism of speech. They may be conceived as co-operating by arousing articulatory motor images either directly or through intermediary auditory

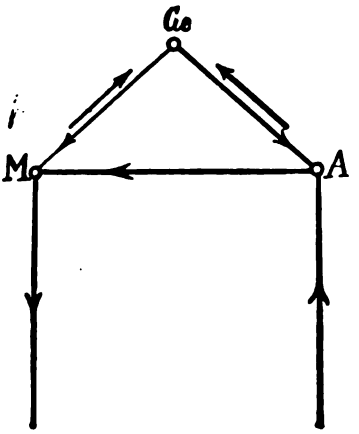

FIG. 3.

images. At the same time it is improbable that this line of connexion is important, for even in patients whose sense of sight has been unusually developed a subsequent weakening of the visual function, such as occurred in a case of CHARCOT'S already mentioned, does not occasion any derangement of speech; and the direct connexion in particular cannot be specially strong, for, if it were, there is no reason why adepts at writing who suffer from cortical sensory aphasia should exhibit the derangement of speech characteristic of that malady.

Leaving aside the influence of the two graphic centres, we arrive as the result of our discussion at the scheme for spontaneous speech and comprehension of speech given in Fig. 3. The symbols chosen are the same as in LICHTHEIM'S schemes, except that for his "conceptual centre" we substitute *Ge*, centres for ideas of objects. The superior potency of the con-

nexion *Ge–A–M* over *Ge–M* is expressed by a thicker line, indicating that ***spontaneous speech involves not only direct stimulation of M by Ge, but also an excitation transmitted from Ge to A and from A to M.***

Comprehension of speech involves (1) ***the centripetal path leading to A***, (2) ***direct stimulation of Ge by A, and*** (3) ***indirect stimulation through M.*** This last path again we represent by a thin line in contrast to the direct connexion *A–Ge*, herein anticipating a result at which we shall arrive from consideration of the pathology of reading.

NINTH LECTURE

Paraphasia: theories criticized: my own view—Anatomical bias in explaining aphasia—GRASHEY's patient: subsequent examination of him by SOMMER

As we saw in the last lecture, one objection that has been taken to the LICHTHEIM-WERNICKE theory of speech-derangement is that spontaneous speech does not take place along the direct path from conceptual centre to the centres for articulatory motor images, but by way of auditory images.

A second objection is directed against their view of *paraphasia*. WERNICKE assumes that every innervation-current descending along the path *B–M–m* sends a branch off to *A*, and " that this unconscious innervation of auditory verbal images assures correct selection of words and correct articulation, which are impaired as soon as this resonance of auditory verbal images fails." LICHTHEIM accepts this view with the modification that innervation of the auditory images is by itself insufficient to guarantee correct speech, and that therefore they must be brought into direct connexion with concepts, which means that the path from *A* to *B* must be intact.

If we are to form a judgment on this question, it is plain that we must know exactly what is meant by paraphasia. KUSSMAUL defines it as " inability to connect verbal images rightly with their ideas, so that those verbal images which find expression do not correspond to the sense, but are changelings or even unintelligible." It is paraphasia when a person says " pen " for " pencil," " Potsdam " for " Berlin," " butter " for " mother," " hat " for " stick," " fork " for " knife," " pepper " for " salt," " camphor " for " pamphlet," and so on, uttering, not the word he intends, but another which is closely associated with it, the association being sometimes between the ideas of the objects and sometimes between the verbal images themselves, more especially the articulatory motor images.

WERNICKE, however, seems to mean something different by

paraphasia, saying that it is present when a person speaks like this: " Many, many times I like to everything possible that you have seen. Yes, I thank you many times for having been so kind, for having been so kind." But, as FREUD justly remarks, this is rather a case of " poverty of words with the right speech-impulses than of retention of one's store of words with paraphasia."

It has been objected to the WERNICKE-LICHTHEIM hypothesis concerning control of spontaneous speech that, if the process of control were such as they suppose, it could not come into operation in time. The centre for articulatory motor images is stimulated from the conceptual centre direct. Well then, if in addition an excitation passes from the motor centre to the auditory and from the auditory back to the conceptual, and if in consequence of this retrograde stimulation of the conceptual centre we become aware that our first impulse does not correspond to what we intend or articulate, a fresh impulse from the conceptual centre would beyond doubt arrive too late. (The assumption that the supposed excitation of the auditory from the motor centre results in further excitation of the conceptual centre is an addition to, and an improvement on, the original hypothesis; for if the excitation reach no further than the auditory centre, it is impossible to see how an incongruity between the actual and the intended speech-impulses can be cognised until the word actually uttered is heard and an afferent impulse reaches the conceptual centre.)

But apart from this objection, which has repeatedly been raised against LICHTHEIM and WERNICKE'S hypothesis, there is another difficulty which I should like to emphasize, namely, that if *the mechanism of spontaneous speech were really such as these writers conceive it to be, a normal person could never fail to catch himself on the point of confounding one word with another, whereas in fact we do fail to do so.*

Lastly, the supposed mechanism would not succeed unaided in effecting correction of a wrong impulse. No doubt it might make us aware of incongruity between intended and actual impulses, but *it would not provide any fresh means of avoiding "lapsus linguae."* Further and keener fixation of the idea of the object, combined with an intention to articulate the right word, might at first sight seem to be a possible means, but I do not think that any one is prepared to assert a defect of such fixation in persons suffering from paraphasia.

On the other hand, if we consider the alternative mode in which the auditory image centre may be conceived to co-operate in spontaneous speech, and suppose that it receives an excitation from the centre for ideas of objects, and in turn transmits an excitation to the centre for articulatory motor images, we can understand how abrogation of the function of the auditory centre may occasion errors in speech-impulses, since one of the conditions of correct impulses is lacking; and similarly we can understand how restoration of the function of that centre may abolish incongruity between intended and actual impulses and result in the renewal of correct speech. Accordingly we are bound to conceive the co-operation of the centre after this fashion.

From this standpoint the simplest way of rendering intelligible the nature of the errors of speech that result seems to me to be this: When an impulse to speak is started, but, owing to abrogation of the dominant indirect connexion between object-centre and articulatory image centre, reproduction of the articulatory image proper to the idea of a given object is impeded, one of two things may happen—either another, though similar, articulatory image may be reproduced instead, or another object-idea associated with the articulatory image may intrude and make use of the impulse. This is all the more likely to happen since consciousness of an obstacle to spontaneous speech often gives morbid strength to the impulse to speak.

Finally I must insist that LICHTHEIM and WERNICKE'S interpretation of derangements of speech starts too entirely from the anatomist's standpoint. The general views by which LICHTHEIM is governed are most plainly to be seen where he is speaking about the aim of studies of aphasia. "To my mind," he says, "there is as little doubt about the aim in view as about the proper method. It is to discover the innervation-centres which are indispensable for speech and its related functions, and the connexions between these centres, and further to determine their situation in the brain."*

My whole treatment of aphasia has, I hope, served as a refutation of this attitude, which has actually misled some writers to explain cases where the patients, though deprived of the power of spontaneous speech, proved able to ejaculate oaths in moments of excitement, on the hypothesis that the correlates of oaths and

* *Loc. cit.*, p. 204.

other interjections have the privilege of a seat in the right hemisphere and so can come into play unimpaired by any lesion on the other half of the brain!

It will, I think, be worth our while to consider in some detail one case of aphasia, to which writers holding very different opinions agree in attributing fundamental importance for the theory of the subject—I mean GRASHEY's case. Most divergent views have been taken of it. GRASHEY* himself thought it must be regarded as a case of functional derangement of speech. Others take it to be a localized trouble, WERNICKE†, for instance, holding that the visual region, and FREUD‡ that the auditory region, is the part most profoundly affected. On the other hand SOMMER§, who examined the patient some time afterwards, declares that a satisfactory explanation is impossible at present. I think that I can contribute something to an explanation of the principal symptoms of the case, and, moreover, we shall be able to draw from it conclusions of value for normal psychology, which is my chief interest in these lectures.

The patient was a man, 27 years old, who had fractured his skull by falling down stairs. As the result of this accident he had become almost stone-deaf in his right ear, had lost the sense of smell entirely, and that of taste almost entirely, could see nothing with his right eye but gesticulations, whilst in his left eye the visual acuity was $\frac{2}{3}$, and the field of vision concentrically narrowed. There was paralysis of the right facial muscle, and paresis of the right hypoglossus, as well as of the skeletal muscles on the right side. Besides all this there was a derangement of speech, manifesting itself during the period immediately subsequent to the accident *in inability to understand questions and in answers which were quite off the point.* When GRASHEY examined him, he exhibited the following peculiarities of speech:—

"He recognises at once any object that was familiar to him before his accident, but he cannot name a single one. When shown a knife, for example, he says he knows it, and adds, "That is what one does *so* with," making a cutting movement. Let

* *Über Aphasie*, etc. (*Archiv für Psychiatrie*, Bd. 16).

† *Die neueren Arbeiten über Aphasie.*

‡ *Zur Auffassung der Aphasien.*

§ *Zur Psychologie der Sprache* (*Zeitschrift f. Psychologie und Physiologie der Sinnesorgane*, Bd. 2).

him look at the knife and handle it any number of times, he cannot find its name. . . . He recognises his old acquaintances at once, but cannot give them their names. . . . When relating anything he usually fails to find substantives, and uses instead the expression 'thingummy.' . . . When he sees anything manipulated in some familiar way, he cannot find the appropriate verb. Similarly with names of qualities; he cognises all colours, for example, but cannot name them.

"That he really knew objects, though he could not give them their names, was easily demonstrated, for he found the name of anything if one gave him either orally or in writing a list of names which included the one he lacked. . . . All the time he understood every word that was said to him and could apprehend correctly and rapidly the meaning of sentences addressed to him. More particularly *he understands without the least difficulty, when they are said to him, the very words and names which he could not find when he saw the corresponding objects.*"

In short, *he was able to find the object-images corresponding to given auditory images* (for he understood the latter), *but unable to find the auditory images corresponding to given images of objects. Yet the centres for both kinds of images seem to be intact*, for he recognises objects, though he cannot name them, and he understands words that are said to him. At first sight, therefore, says GRASHEY, one might be inclined to look for the cause of the anomaly in some derangement of the paths of conduction between the two centres, and this would be possible, supposing either that, contrary to what is normal, conduction takes place along these paths in one direction only, or that there are two distinct sets of paths for impulses of opposite directions. But GRASHEY does not regard either supposition as admissible. "Even if we were prepared," he continues, "to grant the existence of separate association-paths for nervous currents of opposite directions, we should find it hard to comprehend why all those conducting in one direction should be injured, and all those conducting in the other intact; and if we reject that hypothesis we shall find it as hard to comprehend why the path continues to conduct in one direction, but not in the other."*

On examining the patient's peculiarities more thoroughly GRASHEY succeeded in proving the existence of functional anomalies in the centres themselves, which seemed to point to an explanation by means of purely functional factors; for there

* *Loc. cit.* p. 659.

turned out to be abnormal weakness of memory at once for auditory images, and for images of objects and for " symbols."

He tested VOIT'S memory for auditory images by saying to him slowly one by one the letters of some familiar word, getting him to repeat each letter at once, and asking him at the end to say the word which had been thus spelt out. It proved that he could not do so, and could only repeat the last few letters. Similarly with the reproduction of visual images of objects. Weakness of memory for " symbols " was ascertained in a way thus described by GRASHEY : " If I took a sheet of paper with a slit cut in the middle and put it over a written or printed word, so that only the first letter was visible through the slit, he pronounced this letter ; if I moved the slit a little further on, so that only the second letter was visible, he pronounced this second letter ; but in this very short interval he had forgotten the first letter, and so he could not pronounce them together. . . . (Yet if the paper was removed and he saw the whole word, he pronounced it at once and understood its meaning perfectly)."

As helping to explain the derangement of speech in this case GRASHEY further points out that *a spoken word is for the ear a gradually growing object ;* in ordinary speech the articulation of each letter takes about ·06 of a second. " *But an object we see is for the eye a comparatively complete object,* so long as it is not too large or too complex. . . . We can easily perceive a familiar object that is visible for ·06 of a second only, whereas we do not hear more than one letter of a word in that time." And GRASHEY maintains that the same difference must be assumed to hold between reproduced auditory images and images of objects. Now the parts of an auditory image and those of the image of an object do not correspond each to each. " If we divide the image of a horse into any five parts and the auditory image " horse " into five parts—h, o, r, s, e—there is not any part of the one which corresponds to a part of the other. . . . Accordingly, if an object-image is to arouse an auditory image, it is out of the question for a given part of it to excite a given part of the auditory image, but *it must first be complete,* and must last till the individual parts of the auditory image have all occurred in succession. Supposing, therefore, that the auditory image takes ·3 of a second to develop, the complete object-image must be present in consciousness for at least that length of time. *If its duration falls to, say, ·06 of a second, it cannot arouse at best more than a single part, a single letter, of the auditory image.* . . . Con-

versely, if an auditory image is to arouse the image of an object, it cannot do so by its parts, as they occur successively, exciting parts of the object-image, because there is no correspondence between the parts of the two images; it must first be itself completed, and must last until the object-image has arisen. . . . *But the object-image does not take more than a moment to arise*—at most not more than ·06 of a second—*and so the duration of the complete auditory image need not be more than* ·06 *of a second*. . . Thus the duration of the complete auditory image may fall to, say, ·06 of a second without preventing the rise of object-images." In this way GRASHEY shows " that one and the same derangement may affect the transition from object-images to auditory images, and yet not affect the transition from auditory images to images of objects."

It is, however, difficult to reconcile with this explanation of GRASHEY'S the patient's inability, when he has images of objects, to reproduce even the first letters of their names. It is true he can write the first letters, a point to which we shall return, but if he is prevented from writing, he has not an auditory image of even the initial letter. Now, if GRASHEY'S view were sound, we should certainly expect that images of objects would succeed in reviving at least the initial letters of their names, the more so since the auditory image centres are still so far in working order that the patient can understand simple sentences said to him, which of course involves his remembering the individual words until the end of the sentence.

It seems to me that the paradoxical character of the connexion between the functions of auditory image centre and object-image centre in this case is capable of a better explanation on other lines. In normal mental life when we hear a name there very often occurs to us a representation of the corresponding object. But it does not happen nearly so often that, when we perceive an object, the auditory image of its name is reproduced. To take an example, if I see a horse on the road I need not think of the fact that the beast's name is " horse "; my perception may just as well be followed, not by reproduction of the idea of the name, but by further perceptions of connected objects, such as the cart which the horse is drawing. On the other hand, when I hear the name " horse," I do usually represent to myself the object so called. The difference has developed owing to my *interests*. When I hear the name " horse ", I often have an interest in reproducing an idea of the corre-

sponding object; but it is not nearly so often the case that when I see a horse I have an interest in recalling its name. The transition from name heard to representation of the object, being thus far more frequent than the transition from object perceived to representation of the name, has naturally become easier than it and easier than that from ideal representation of the object to representation of the name.

Now suppose that both in the centre for object-images and in that for auditory images there may be various degrees of enfeeblement of the disposition to that function which is the correlate of reproduction of ideas; traversing these various degrees *we must arrive somewhere at a point of like weakness in the two centres at which auditory images can still arouse object-images, whilst object-images can no longer arouse auditory images.* But GRASHEY's experiments have shown that in the present case there is enormous enfeeblement of this disposition in both centres. It would be going too far to think of saying definitely that there is just that degree of weakness which would suffice to abolish reproduction of auditory images by object-images; I am merely concerned to emphasize the fact that this purely functional factor, as I have described it, is thus operative, and to claim that in aphasic cases of this type it should be regarded as the condition, or at any rate as one of the conditions, of the derangement of speech.

It is another peculiarity that in this case VOIT *was able to find the names corresponding to images of objects by aid of writing.* If he had an object continually before him so that his image of it was constantly renewed, he could write down the name letter for letter. I pass on to discuss the mechanism of this graphic means of finding names; but before giving you my views, I must say a few words about the fresh examination of the case which was made a few years later by SOMMER.

VOIT had by this time developed great skill in finding words by means of writing, and generally made graphic movements on the sly with his fingers or feet. When his fingers and feet were held fast, he helped himself out by making graphic movements with his tongue, and it was only when he was made to hold his tongue out as well that he failed to find the names of things.

SOMMER then tried to discover whether he had auditory and graphic images when thus held captive. A picture of a funnel (*Trichter*), for example, was placed and left before him. Asked

whether he knew the name of it inwardly, he shook his head. Asked whether the name began with R, E, T, or F, he shrugged his shoulders, as one ignorant. Asked whether it began with Re, Sa, Trich, Fal, he still shrugged his shoulders. Even when he was asked, among other questions, whether it began with Tricht, he could not recognise this as a part of it, and it was not till the whole word "Trichter" was pronounced among others that he gave a vigorous nod with his head.

That he had not graphic, any more than auditory, images was discovered by setting pictures before him and writing down the initial letters of the appropriate words together with those of other words.

From these experiments it is evident that VOIT'S *writing is not preceded either by auditory or by graphic images*, and we have to ask how the process of writing and word-finding by means of writing is to be explained in this case.

Given are, first, an idea of an object, and, secondly, the fact of writing. Now the act of writing presupposes stimulation of the centres for the correlates of graphic motor images, and *prima facie* there seem to be three ways in which this stimulation may be brought about. It may be the result of an excitation transmitted direct from the centres for ideas of objects; or the excitation may come via the centres for auditory and graphic images, the stimulation of these centres being of such low intensity as to have no psychical processes correlated with it; or the excitation may come by both paths at once. SOMMER rejects the second alternative for no other reason than that one can do anything if one assumes unconscious processes. I would rather formulate the objection in another way. Even if the occurrence of unconscious links in the causal series of psychophysical processes were proved, I should deny their presence under the circumstances we are considering, for they are at most to be expected only when there is a very intimate association of ideas, and the very way in which they are conceived puts it out of the question that they should occur when the strength of connexion is, as here, abnormally diminished.

For this reason I do take it as proved that the stimulation of the centres for graphic motor ideas must in this case come direct from those for images of objects. It results in the act of writing, and this act of course *occasions sensations of graphic movements*. Now it is these sensations which, owing to previously formed associations, reproduce the appropriate verbal images; their

physiological correlates naturally excite the appropriate centres far more powerfully than any process of central origin can do.

When we come to speak of the mechanism of writing in a future lecture we shall utilize these data and conclusions; at present I wish to mention some other interesting experiments which SOMMER made with VOIT, held captive in the way described, and deprived of his speech-functions. They relate to the *power of forming concepts.* "VOIT was shown pictures of two objects at once, and asked whether they could both be called by one name. When he was not held captive he always found the name of their proximate genus quickly, by aid of writing; but when he was held fast he could never find the name of a concept including both objects. We asked him whether he knew it inwardly, getting him to reply by a nod or a shake of the head; the gesture was always negative. Yet we could tell that he did really combine the objects in one concept even when he could not find a common name for them. We set two pictures before him of, e.g., a trumpet and a guitar, and letting him look at them for some time asked whether he knew the word that is a name for both of them; he replied by shaking his head. Then we asked him whether the things belong together, whether they can be designated by one name; he nodded vigorously." So, without knowing the name that covers both, he knew that they belong together; he conceived them together. When freed from captivity he would utter the right name after several seconds, as "sacred articles" for bell and organ; "building" for room and cellar; "edifice" for palace and barn; "household utensils" for sickle and watering-can; "firearms" for gun and cannon. *So this case furnishes a valuable contribution to the question of the importance of speech for thought.*

In the next lecture we shall succeed in drawing additional conclusions affecting normal psychology from other discoveries that have been made concerning VOIT.

TENTH LECTURE

Re-examination of GRASHEY's patient by WOLFF; ideas of objects and ideas of properties—Theories of derangements of reading and writing; the mechanism of reading.

AT the end of the last lecture we were still speaking of GRASHEY'S aphasic patient. A few years after his examination by SOMMER he was again re-examined, this time by WOLFF*, who on the whole confirmed his predecessor's results. WOLFF, however, did not find the path from the centres for auditory images to those for images of objects "uninjured." He says that VOIT is unable to mention the visible *properties* of an object named, even with the aid of writing. Asked, "What is the colour of a meadow?" he cannot find the word "green" by writing, and similarly he cannot tell the colour of sugar or of leaves, nor can he say how many legs a horse has, and the like. Yet his power of understanding speech is not defective, and WOLFF confirms GRASHEY'S statement, that when several objects are placed before him he invariably signifies the right one in response to an oral request, and that in general, as far as manipulation of external things goes, he executes orders promptly.

It is just the same with all other sensible characters, says WOLFF; he can tell nothing about them. Take the audible: he cannot answer such questions as, "What does the clock do every hour?", "What noise does a cock make?" Or the tangible: he cannot say what a knife must be, if it is to cut; or what ice must be if it is to be good for skating. Nor can he answer such questions as, "What is the taste of sugar?", "What is the smell of a rose?"

But he is very clever at concealing his defects. "If he is asked the colour of leaves he goes to the window and looks for a tree, and as soon as he sees one he can write the answer—

* *Über krankhafte Dissociation von Vorstellungen* (*Zeitschrift f. Psychologie und Physiologie der Sinnesorgane*, Bd. 15).

'green.' So he knows quite well what is wanted; all he lacks is the sensible representation. That he has understood the questions perfectly is especially clear if one asks him the properties of an object of which he knows he has no chance of getting a direct perception. Asked how many legs a horse has, he goes to the window and waits till a horse comes by; and similarly if he is asked the colour of snow, and it is winter, he goes to the window; but if it is summer, he does not try to get a view of snow."

Here is an instance which shows particularly well his simultaneous ability to understand speech and inability to name properties. WOLFF happened to ask him the colour of blood. After a period of reflection, in which he looked helplessly round the room, he finally pressed a little pustule which chanced to be on his hand until he saw a drop of blood; he then answered "red," using writing. There were numbers of red things in the room all the time, but he had to see actual blood in order to answer.

All this leads WOLFF to maintain that VOIT *has representations of objects without representations of their properties.*

Before discussing this interesting state of things, I will call your attention to another discovery that WOLFF made. Though, when the names of sensible objects were given him, VOIT's power of getting at their properties was at least much enfeebled, he was far better able to reproduce non-sensible characters. When the question was put, "Are you an honest fellow or a bad one?" he replied, by means of writing, first "honest," and the second time, "good." Asked, "What is a person who retains nothing, forgets everything, and can't learn?" he answered first "lazy," and the second time "stupid." Whereas to the question, "Is thunder blue?" his first reply was "Yes," and his second, "Maybe."

So, you see, *he can reproduce non-sensible characters far better than sensible,* and that is true of all cases where the power of reproduction is generally enfeebled, the cause being doubtless that ideas of sensible concrete properties are less frequently reproduced than those of non-sensible abstract properties.

WOLFF'S other discovery is not so easy to explain. VOIT has ideal representations of objects without representation of their properties. As I shall show you later, I have found some-

thing like this among idiots*. Some idiots have the power of naming objects pretty considerably developed, but are unable to name properties; it is only those of a higher level of intelligence that can do both. The difference is that these idiots have never had ideas of properties; whilst VOIT used to have them, but has lost them.

How is this condition to be explained? You would think that the idea of an object must involve ideas of its properties and could not occur without them. Yet VOIT has an idea of the object blood, though he lacks the idea of its colour (and not merely the idea of the name of the colour); he knows that by pressing a pustule he will get sight of blood. He does not know how many legs a horse has, but he does know that he is likely to see a horse on the road. This state of affairs seems to admit of only one interpretation. *His ideas of properties, taken individually, are very obscure and indistinct; but as united in an idea of an object they form an aggregate which may well be definite enough to reproduce ideas of the relations in which the object stands to other things.*

The cause of their obscurity and indistinctness does not seem to me to be the same in VOIT'S case as in idiots. In VOIT we must assume that the intensity of the physiological correlates of these ideas is weak, whilst as regards idiots we have rather to consider that at such a low stage of mental development *the abstraction of individual ideas of properties out of an aggregate idea of an object is rendered very difficult by the intimacy of their combination in it.* For it is only as the result of a process of abstraction that ideas of properties can occur in separation from, and side by side with, ideas of objects. But, it may be replied, ideas of properties are prior, they are conditions of the formation of ideas of objects. I cannot agree. Prior to ideas of objects are merely embryonic ideas of properties, not such as are subsequently attained by abstraction. Our data show that the facts do not correspond to the order in which many psychologists with a tendency to logical constructions attempt to arrange them; *ideas of properties develop only in and with ideas of objects, and are not abstracted from them till comparatively late.*

The last point I have to mention concerning derangements of speech is a discovery made by GOSSEN,† in the case of an aphasic patient whose power of reproduction was much enfeebled, namely that association of senseless syllables is facilitated by

* *v.* Lecture XXII.—*Tr.* † *Archiv für Psychiatrie*, Bd. 25.

rhythmical accentuation. As you are aware, this has been confirmed experimentally by MÜLLER and SCHUMANN*.

I propose to treat next of derangements of reading and writing, which, by a slight terminological error, are all usually included under the name of aphasia. I shall introduce the subject by giving you a sketch of the views of WERNICKE and of CHARCOT.

As an aid to a general survey of the circumstances, WERNICKE draws a schema (Fig. 4) in which a represents the graphic image centre, β the graphic motor image centre, and C the centre for auditory and articulatory images; the centripetal path to the graphic image centre and the centrifugal path from the graphic motor image centre have also to be shown.

Reading, says WERNICKE, requires (1) the centripetal path to a, and stimulation of that centre, and (2) transmission of the

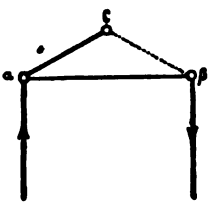

FIG. 4.

excitation to C. Spontaneous writing involves (1) stimulation of the auditory and articulatory image centres, and (2) transmission first to the graphic image centre and then on to the graphic motor image centre—the path C–a–β, that is. Copying writing requires (1) the centripetal path to a, (2) the path a–β, and (3) the centrifugal path from β.

Using names analogous to those of the different types of aphasia WERNICKE speaks of—

cortical alexia when there is lesion of centre a;

subcortical alexia when there is lesion of the centripetal path to a; and

transcortical alexia when there is lesion of the path C–a.

Agraphia is of two kinds, which he calls—

cortical agraphia when there is lesion of β, and

subcortical agraphia when there is lesion of the centrifugal path from β.

* *Zeitschrift f. Psychologie und Physiologie der Sinnesorgane*, Bd. 6.

Cortical alexia is marked by

(1) abolition of the power of reading, for that involves the centripetal path and the path a–C ;

(2) abolition of the power of writing spontaneously (C–a–β) ; and

(3) abolition of the power of copying writing (centripetal path and a–β).

Transcortical alexia is marked by

(1) abolition of reading (a–C) ;

(2) abolition of spontaneous writing ; but

(3) preservation of ability to copy, which does not require the path C–a.

Subcortical alexia is marked by

(1) abolition of reading ;

(2) abolition of copying ; but

(3) preservation of ability to write except from copy.

Now as to agraphia.

Cortical agraphia is present when we find abolition of the power to make graphic movements, i.e.—

(1) abolition of copying, and

(2) abolition of spontaneous writing ; but there is

(3) preservation of ability to read.

Lastly, in *subcortical agraphia* we find abolition of writing and preservation of reading, as in the cortical type, the difference being that patients still comprehend the movements necessary for writing, so that when these movements are executed passively they can tell what they are with their eyes shut.

Before beginning to discuss the mechanism of reading and writing, as revealed by abnormal cases, I wish to give you the schemata of reading that are in vogue in CHARCOT'S school. I shall thus be able to show you by an example the use that CHARCOT makes of *different psychical formulæ* for different persons, and to examine the value of his procedure.

According to CHARCOT'S school there is one schema for those in whose verbal ideas auditory images predominate, and another for those in whom visual images are most prominent.

In the former the auditory image is supposed to constitute

the nodal point for all associations of the partial verbal ideas. In Fig. 5 let *Kl* represent the auditory image centre, *Se* the visual centre, *Ge* the centres for ideas of objects, *Sp* that for articulatory motor images, and *Schr* that for graphic motor images: then in persons of this type the process involved in reading will be that stimulation of *Se* causes stimulation of *Kl*, and from *Kl* the excitation is transmitted to *Ge*, so that there is not any direct connexion between *Se* and *Ge*. Reading aloud will require in addition a branch path to *Sp*, the centre for articulatory motor images. In writing the excitation will not pass direct from *Ge* or *Se* to *Schr*, but must first stimulate *Kl*.

In those whose verbal ideas are predominantly visual the process will be quite different. If we use the same symbols as before, it will now be *Se* that represents the nodal point for all

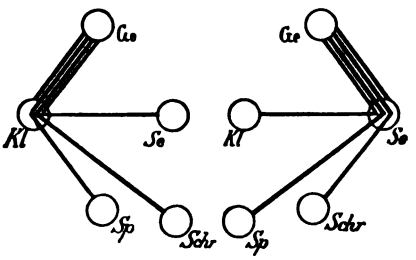

FIG. 5.

associations between the centres for verbal ideas and for ideas of objects. Reading now requires the path *Se–Ge*, so that in these persons there is direct connexion between visual image centre and the centre for ideas of objects. In reading aloud the excitation is transmitted further, from *Se* to *Sp*; and writing involves the path *Ge–Se–Schr*, instead of *Ge–Kl–Schr*.

I have borrowed these schemata from a book which I have mentioned before, *Le langage intérieur, et les diverses formes de l'aphasie*, by a pupil of CHARCOT'S, Professor BALLET.* The only evidence cited in support of these contentions consists of that case of CHARCOT'S which I spoke of when dealing with derangements of the connexions between sensations and reproductions†. You will remember that the patient was a scholar, belonging to the visual type, and possessed of an excellent memory, whose power of effecting visual reproductions became greatly enfeebled, so that he could no longer visualize absent things, but had,

* Second Edition, 1888, p. 94. † *v.* Lecture VII.—*Tr.*

contrary to his former practice, to call auditory images to his aid in order to remember anything; and with this there went a general weakening of his power of reproduction. Now, it is argued, this behaviour, "this profound mental revolution in the case of a man who used to think in graphic images," resulting from "loss of internal vision," can only be explained on the assumption that the visual centre was the nodal point for all his associations.

As against this it must be insisted in the first place that the patient's behaviour is still intelligible even if the other schema applies, for even so a person with a predominant disposition to visual reproductions will necessarily find his whole mental life seriously impaired by a defect in the centre for visual representations.

But, furthermore, BALLET has at the back of his mind the notion that whenever there is a dominant disposition formed to reproduce ideas belonging to a particular sense, it must make this sense the nodal point for all associations; as if nothing affected the intensity of associations except the degree of intensity possessed by the ideas associated.

Lastly, if the second schema did apply in this case, it would pass understanding that a man, in whom visual ideas had previously constituted the nodal point of all associations, should almost entirely lose his visual images and then be able to work with his auditory centres in all reproductions of ideas like a person of whom the other schema holds good. He could not do so unless, besides the connexions represented in the second schema, the paths *Kl–Ge*, *Kl–Sp*, and *Kl–Schr* already existed as the result of slighter associations.

In short, this doctrine consists merely of specious assertions without any proof.

In WERNICKE'S schema of reading and writing we do not find any representation of connexions between the various ideas whose centres are given and ideas of objects. The reason is, no doubt, that he takes it as obvious that in reading the centres for ideas of objects can be stimulated only by an excitation transmitted to them from the visual image centres by way of the centres for the correlates of auditory and articulatory motor images, and that in writing a stimulation of the centres for ideas of objects must be propagated first to *C*, then to *α*, and finally to *β*.

I will now proceed to a statement of the mechanism of reading based upon the data at our disposal. The process of reading comes in the end to this: stimulation of the graphic image centre causes corresponding stimulation of the centre for the correlates of ideas of objects. I will begin with a treatment of the less potent connexions between these centres.

Looking at the matter from the point of view of a purely subjective psychology one might be inclined to make ability to write dependent on ability to read, but pathology shows us cases where ordinary reading is abolished, but writing and speech are preserved, and the patients can manage to read in a roundabout way by aid of sensations of graphic movements. BRANDENBURG'S* case is of this type. The patient is suffering from right lateral homonymous hemianopsia, and, says BRANDENBURG, " when he cannot find the names of individual letters, he tries (though not with much success) to help out his memory by tracing the forms of the letters on the table or in the air. If required to write down the correct names of objects which are held in front of him, but not given him to touch nor named aloud to him, he puts down ' Messer ' (knife), ' Schlüssel ' (key), ' Federhalter ' (pen-holder), ' Buch ' (book), ' Schere ' (scissors), on paper correctly, can explain their uses, and pronounce their names distinctly; but a little while later he is unable, or very imperfectly able, to read the names that he himself has written. ' Messer ' he cannot pronounce at all, for ' Buch ' he reads ' Burg ' (castle), for ' Schere,' ' Schwert ' (sword). If one points at the word ' Buch,' which he has read as ' Burg,' and asks him whether he knows what sort of thing it is, he replies ' a stronghold to live in '; and similarly ' Schwert,' which he has misread for ' Schere,' is ' a weapon to cut with.' When required to re-write the words he has misread, he miscopies them as he spoke them, ' Schwert ' for ' Schere,' ' Burg ' for ' Buch.' If one then dictates the words ' Schere ' and ' Buch,' he puts them down rightly without hesitation, and the next moment reads them rightly; but when the test is repeated after the lapse of some minutes the old game begins again." So, you see, he cannot read except by aid of graphic movements.

Similarly in an admirable case of CHARCOT'S. " The patient," says BALLET, whose abstract of the case I will quote to you†, " was a M. P., a merchant of the town T., 35 years old, a man of moderate intellectual culture, who spoke French correctly and

* *v.* GRAEFE'S *Archiv für Ophthalmologie*, Bd. 33. † *Op. cit.*, pp. 104-5.

wrote it fluently and fairly well. Before the trouble which is about to occupy our attention, he was much given to reading, especially novels and *feuilletons*. In the month of October, 1882, as the result of a hunting accident, which need not be particularized, he had an attack of apoplexy, which left him hemiplegic on the right side and paraphasic. In the course of a few days the paraphasia and hemiplegia vanished, and when we first examined him, under M. CHARCOT's direction, only two symptoms remained—right lateral hemianopsia and the word-blindness on which I am going to dwell. . . . M. P. understood quite well whatever was said to him, replied to questions with great precision, and even showed a certain facility of expression. Moreover, he could write his name or his address, or even a long letter, without difficulty and without any remarkable errors in orthography; but the interesting point is that, though he could write and did so with a certain readiness, he was unable to read. 'I write as if with my eyes shut,' he said, 'I do not read what I am writing'; and as a matter of fact he was quite unable to read the words he had written a few minutes before." CHARCOT's account of the case gives us the additional information that the patient sought to make up for his shortcoming by graphic movements.

Similar cases have been described by ADLER*, UHTHOFF†, and HINSHELWOOD‡, among others. In all of them there is right lateral homonymous hemianopsia, and therefore lesion of the left occipital lobe. This lesion makes reading in the ordinary way impossible, and the patients cannot interpret graphic symbols except by aid of graphic movements. So the process is that graphic motor ideas are reproduced and start actual graphic movements; these movements occasion corresponding motor sensations, and finally these sensations arouse an idea of the appropriate object.

Now the last step in this process might be direct or it might be mediated by stimulation of the auditory and articulatory motor image centres. The connexion between the centre for graphic motor images and these latter we came across in the case of the man VOIT. As to the possibility of direct stimulation, I should have to refer you to the normal psychological fact, that writing

* *Kasuistische Beiträge zur Lehre von der Aphasie.*

† *Beiträge zu den Gesichtstäuschungen.*

‡ *Word-blindness and Visual Memory* (*Lancet*, 1895). [Reprinted in *Letter, Word-, and Mind-blindness.—Tr.*]

certainly involves transitions from graphic motor sensations to ideas of objects, were I not prepared to infer the existence of this connexion from the fact discovered in VOIT that ideas of objects may reproduce graphic motor ideas directly, an inference that depends upon the assumption of a regressive association.

I ought next to determine the valence of these " paths." Let me say in general that *I speak of an association between ideas as having strong valence when it enables one idea to reproduce another correctly as to content, and in time without retardation (relatively to the average rapidity of reproduction in the particular associational system); whilst I call the valence weak when the reproductive tendency of the first idea is not strong enough to revive the second, but requires support, say from some third idea, which has a similar connexion with the second.*

As to the valence of the connexions we are now considering, we can infer from our pathological data that it must be slight. For observe, in these cases graphic images do not arouse ideas of objects by way of the graphic motor centres (*Schi–Schr–Ge* in Fig. 6) unless actual graphic movements are made ; unless, that is, not merely ideas, but sensations of these movements are present. And since the intensity of stimulation which corresponds to graphic motor ideas is insufficient to arouse ideas of objects, it follows that this indirect connexion between visual verbal ideas and ideas of objects is weak. Of course, this does not prove that each link in the chain is weak. We shall find when we come to discuss the mechanism of writing that the tendency of graphic images to reproduce graphic motor ideas is strong (*Schi–Schr*), and from this it follows that the connexion between the graphic motor centre and the centres for ideas of objects (*Schr–Ge*) must be weak.

Moreover, the " path " from the graphic image centre to those for ideas of objects (*Schi–Ge*) must also be weak. True, many writers assume that it is strong in persons who have acquired great facility in reading ; but plausible though their assumption is, it finds no confirmation in pathological cases, whilst normal data, though they compel us to assume some connexion between these centres, do not give us any definite idea of its strength. It is, indeed, asserted that this " path " becomes important in cases like those of BRANDENBURG and HINSHELWOOD which I mentioned just now, where all other lines of connexion seem barred, and where nevertheless we sometimes find that the patients can still read figures without the aid of graphic move-

ments. *This means that reading figures is easier than reading words or letters*, and that might lead one to think that in reading figures a specially strong connexion is formed between graphic images and ideas of objects. But when we have found the answer to the question which will occupy us in the next lecture, whether reading takes place letter by letter, we shall be able to show that there is no necessity to adopt this interpretation of the facts.

Of all the paths concerned in reading that from graphic images to ideas of objects via auditory images (*Schi–Kl–Ge*) can be proved from pathological cases to be the most potent. For only two paths remain which could be regarded as specially strong, one by way of the auditory image centre, and the other by way of the centre for articulatory motor images, and we find that a lesion confined to the latter centre leaves the power of intelligent reading intact, or at worst very slightly impaired—and such injury as there is must be attributed to action at a distance; whence it follows that the path via the auditory centre is one of strong valence. I may refer you for instances to two cases of LÖWENFELD'S*, where there was lesion of the centres for articulatory motor images and the patients' ability to read aloud was distinctly defective, but nevertheless their power of reading mentally to themselves "showed only slight and temporary impairment."

Moreover, there are certain cases of "transcortical sensory aphasia," e.g. one reported by PICK† and another by DÉJÉRINE, where patients' ability to understand what they read is abolished, though their power of reading aloud is preserved. These cases are strong evidence that the path from the auditory image centre to the centres for ideas of objects (*Kl–Ge*) is one of strong valence. They also involve weakness of the path from the centre for articulatory motor images to that for ideas of objects (*Sp–Ge*). But this path is not always weak; there are cases of sensory aphasia, such as those of ANTON‖ and of BOTEMAN§ (compare also GOWERS‡), in which the patients can understand what they read—in which, therefore, this path is strong. So it is a path of variable valence, a fact which is no doubt due to indi-

* *Über zwei Fälle von amnestischer Aphasie*, etc. (*Deutsche Zeitschrift für Nervenheilkunde*, Bd. 2).

† *Neue Beiträge zur Pathologie der Sprache* (*Archiv für Psychiatrie*, Bd. 28).

‖ *Arch. de Neurologie*, 1889.

§ *Wiener klinische Wochenschrift*, 1888.

‡ *A Manual of Diseases of the Nervous System.*

vidual differences in the development of the articulatory motor centres. That being so, the valence of the path from graphic images to articulatory motor images (*Schi–Sp*) is in all probability also variable. It is necessarily strong in cases where lesion of the auditory image centre does not abolish spontaneous speech nor the ability to understand what is read; it is specially likely to be weak when the centres for articulatory motor images are only slightly developed, because here these images constitute, not as in the last case the reproducing idea, but the idea to be reproduced.

Let me add, in conclusion, that the connexion between the centres for articulatory motor images and those for ideas of objects (*Sp–Ge*) must be weaker when it is a question of under-

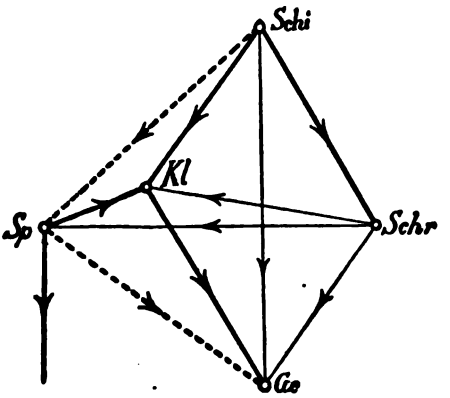

FIG. 6.

standing what one hears than in reading, since in the latter act sensations of articulatory movements are almost always involved, whereas in the former only ideas of these movements are likely to play any part.

So we arrive at the schema of Fig. 6 as the result of our discussion. *Schi* denotes the graphic image centre, *Kl* the auditory verbal image centre, *Ge* the centres for ideas of objects, *Schr* the centre for graphic motor images, whilst *Sp* stands for the articulatory motor image centre. The valence of the "paths" *Schi–Schr*, *Schi–Kl*, and *Kl–Ge* is strong, as also *Sp–Kl* and *Kl–Sp*; that of *Schi–Sp* and *Sp–Ge* is variable; whilst *Schr–Ge*, *Schr–Sp*, *Schr–Kl*, and *Schi–Ge* are weak.

ELEVENTH LECTURE

Do we read letter by letter?—Cases of persons able to read figures, but not words or letters—Do we write letter by letter?—The mechanism of writing—Summary of conclusions of interest to normal psychology derived from aphasic cases.

WE may now proceed to derive from pathological cases an answer to *the question whether reading and writing always take place literally*, i.e. *letter by letter*. I will begin with reading, and the first case I will cite as bearing on the point is one of SOMMER'S*.

The patient suffers from partial letter-alexia, and moreover can "only with difficulty compound a series of the letters he does know into a word, and often fails to do so altogether." One day that SOMMER experimented with him he knew the following small Roman letters—a, b, c, d, i, m, n, r, w, x, but when the word "band" was written (a word whose four component letters he knew for certain), though he could spell out the letters correctly, he could not get at the word; after prolonged attempts he at last articulated "bank," then "bar," and finally gave up in despair. Similarly when sounds are pronounced to him; he did, indeed, combine a, u, s into "aus," but could make nothing of B, u, c, h or H, a, n, d, although he could repeat these series without hesitation; whilst in response to W, e, g he articulated "Wegen" and reacted to K, i, n, d with "Degen."

You see, he is perfectly well able to reproduce series of letters, but cannot arrive at the words which they compose. SOMMER infers that mere succession of series of letters is not sufficient to constitute words, replying to the question what more is needed, that *the succession must take place at a definite speed.*

If we are to utilize these data it is important to know whether the constituent sounds or the constituent letters of words were pronounced to the patient. If the letters, if might be argued that the difference between what he did effect and what he ought to have effected need not depend solely on the difference between

* *Zeitschrift für Psychol. und Physiol. der Sinnesorgane*, Bd. 5.

the actual speed with which the parts of the words did follow one another and the speed which is required for their composition into words; for pronouncing a word whose letters are said to one obviously involves more than merely pronouncing one letter after another at a certain definite rate of speed. Now the words were as a matter of fact spelt out to the patient by letters, so that SOMMER'S inference is not proved. SOMMER has indeed anticipated this objection, and replies that if the speed had been right and it had been the fact of pronouncing by letters that prevented the formation of the right words, the patient would have articulated words that represent the sound of the names of the letters when uttered in rapid succession—for instance, "kaiende" instead of "kind." The objection to this is that unfamiliar words are far harder to read than familiar words, especially for people who have not had much practice in reading.

Cases such as have been reported by LÖWENFELD* and LEUBE† seem to me decisive. In LEUBE'S case we see quite distinctly the importance for reading of object-images of entire words. His patient could not pronounce a word if it was presented to her in its visible graphic form; as long as she had the impression of its visible form she wasted her time in vain efforts to spell it. But if the written word was withdrawn and there was nothing to induce her to spell, she could articulate the word. You see then, she could not read literally, but only when affected by aggregate verbal images.

LÖWENFELD'S cases lead us towards the same conclusion; I will quote one of them. The patient was able to understand what was said to him, but his ability to read was much impaired. As he knew the letters of the alphabet individually, and, except during the first few days that he was under observation, named them correctly, it was to be expected that on failing to read words rightly at first sight, he would attempt to master them by spelling them out. But he never did so; when he failed the first time he went on trying to pronounce the whole word in one breath until by luck he succeeded. Subsequently he had recourse to memory as soon as a word presented any difficulty, and did not trouble to go on gazing at its visible form, owing probably to the improvement which had taken place in his memory; he tried to recall the word, and as a rule it did

* *Loc. cit.*

† *Über eine eigentümliche Form von Alexie* (*Zeitschrift für klinische Medizin*, 1889).

occur to him. Thus *he treated the visible word like an object whose name he had momentarily forgotten.*

Though he made no pretension to higher culture this patient must be reckoned as an adept at reading, for, as he repeatedly declared, he used to read a great deal, in his younger days particularly. Moreover, the texts used in experimenting with him were at first mostly newspaper advertisements, in large type, and afterwards articles from the papers, and their contents were of a kind quite familiar to so eager a reader of journals. The words being all known to him, and his method of reading being to some extent successful, his mistakes did not lead him to try another method, for he always thought, when he bungled a word, that it must come out right at the next attempt. He abandoned himself, as it were, to the automatic activity of his speech-centre, just as a practised pianist who bungles a passage does not think it necessary to go through it again slowly note by note.

Cases such as these show that aggregate images of entire words may at any rate play an important part in the process of reading, which need not, therefore, always take place letter by letter.

That point being settled, we may pass on to the explanation of a remarkable fact which I have mentioned before, that in many cases where the power of reading aloud and understanding written words and individual letters is lost, the power of reading figures is nevertheless retained. I gave you several references in the last lecture; BRANDENBURG'S patient, for instance, had absolutely lost the power of reading words or separate letters, but read numbers stated in figures quite fluently, even large numbers, such as 12420. But numbers written out in letters he could not read any better than other words.

Words, whether names of numbers or not, stand in a different relation from figures to auditory images; for to every part of a word there corresponds the auditory image of a letter, whereas to a figure there always corresponds the auditory image of an entire word. Now if the auditory images of words so familiar as the elementary numeral names are more current in a person's mind, and therefore more easily reproduced, than those of separate letters, you can understand that figures may still be able to reproduce them although the sight of letters may no longer have the power of reproducing corresponding auditory images. But any one whose general intelligence remains sound, and who can reproduce the auditory images of elementary numeral names,

will have no difficulty in reading longer numbers, the additional work involved being in the main merely to interpret the position of the individual figures. In those cases, however, where a person is unable to read words, and not letters only, the visual aggregate images of words can never have acquired a strong tendency to reproduce auditory images.

To answer *the question whether writing is performed literally* is a less simple matter. Before entering upon it we must ascertain what precisely is meant by "literal writing," or, seeing that different authors attach quite different meanings to the term, what is the most convenient sense in which to use it.

SOMMER calls it writing literally when graphic movements are conditioned by visual representations of individual letters. In this sense an affirmative answer to our question would commit us to the assertion that every single letter must be represented before it is written as a condition of being written at all.

GRASHEY, in his polemic against SOMMER, uses the words in quite another sense, meaning by "literal writing" that separate impulses corresponding to separate letters issue from the visual image centres.

If I had to compare these two usages I should prefer GRASHEY'S, since *for our purpose* it is far more important for us to know whether there are such separate impulses involved in writing than to know whether the stimulation of the visual image centres which acts as an impulse is of such a kind that the impulses have psychical correlates.

Other writers speak of "literal writing" when the analysis of words into letters takes place in the centres for articulatory motor images.

It seems to me that we can get real clearness as to what we want to know by trying to answer two questions:—

(1) *Where does analysis of words into letters take place?* In the centres for graphic motor images themselves, or in those for articulatory motor images, or in those for visual images, or in all these centres?

(2) *Is writing words always and only a matter of writing individual letters?*

An interesting case of SOMMER'S* will help us to decide the second question. The patient is unable to write the letters of the alphabet to dictation, failing over g, m, n, r, and v. Never-

* *Loc. cit.*

theless, he can write words to dictation in which these five letters occur. So he can write his own name, Philipp Hebling, and the names of his sons, Michael and Lorenz Hebling; the name of the town where he lives, Greussenheim; and of his parson, Karl Müller; and his district, Würzburg; though, as you see, these names include letters, like the "r' and "g" in Würzburg, which he cannot write when they are dictated by themselves. From this we may infer that ***writing familiar words is not simply the same as writing individual letters.*** When the patient has to write the word "Hebling," the "g" is far more favourably circumstanced than when he has to write it by itself; for he has, of course, frequently written his name, and so associations have been formed in the different sensory centres whose activity is involved, and they facilitate reproduction of the different sensory representations of "g," till finally the image of the necessary graphic movements is revived.

I turn to the other question: Where does analysis of verbal ideas into letters take place? ADLER* has described a case of aphasia from BIERMER'S hospital in Breslau, in which the abrogated functions were restored one by one in an interesting way. At one stage of this process the patient had recovered his powers of reading and of understanding what he read, but his writing was still defective, and certain constant confusions of letters occurred. "If requested to spell a word he had written, he made precisely the same mistakes that he had just made in writing it." He wrote to dictation—

in place of Hand—Hnand, and then Huand;
" " Glas—Glosel, Glose;
" " Butter—Br;
" " Feder—Fleder;
" " Schachtel—Schlachte;
" " Hand—Hai;

and yet just before these attempts at writing he had repeated the words all right orally. When asked to spell them he made the same mistakes as in writing them.

ADLER infers that all writing is executed literally, in the sense that words are analysed into letters in the centre for articulatory motor images before the centre for graphic motor images comes into play; and in support of this conclusion he cites the further fact that the patient always wrote correctly "when there was

* *Kasuistische Beiträge zur Lehre von der Aphasie.*

no need to spell out letters." "There was a striking difference between his writing of numeral names and of figures; numbers and figures were always correctly written, but numeral names exhibited the same mistakes as other words written to dictation."

You might be inclined to ask whether the analysis of words may not have taken place in the visual graphic image centre and the mistakes have been made there and afterwards affected the patient's spelling. To that there are two objections: first, that this was a case of weakness of the auditory and articulatory, but not of the visual image centres; and secondly, that though the patient could pronounce "Hand" correctly, "he was unable to say 'Ha,' but always said 'Hai' instead," and also wrote 'Hai' for 'Hand.' So his confusions of letters in writing to dictation cannot be charged to the function of the graphic image centres.

On the other hand such confusions as "Hnand" for "Hand," "Fleder" for "Feder," and "Br" for "Butter," are direct evidence of analysis in the centres for articulatory motor ideas. If the articulation of the word "Feder" is drawn out and the speech-muscles are then suddenly relaxed with the innervation required for articulating F, innervation of the articulatory movements of "l" may easily ensue, as you will find if you try; and so the error admits of an explanation on articulatory motor lines. A similar prolongation of the word "Hand" is apt to produce disproportionate innervation of the movements involved in uttering "n," which explains the reduplication of that letter in the dictation exercise. So too with the "r" in "Butter."

We are thus compelled to regard *the centres for articulatory motor images* as causally concerned in the analysis into letters of words which have to be written. But we cannot attribute this function to them alone. In the first place, such analysis may begin in *the centre for graphic motor images*, as we learned in the case of VOIT; and, secondly, there are considerations of a normal psychological character which compel us to admit the co-operation of *the graphic image centre*. These centres must certainly assist when the articulatory motor image of a word does not unambiguously determine the mode of writing it.

Now I want to try and ascertain *the mechanism of writing*. We have to distinguish spontaneous writing, mimetic writing or copying, and writing to dictation. In all three acts, of course, the process ends in excitation of the centres for graphic

motor images, starting in the first of the three from the centres for ideas of objects, in the second from the graphic image centres, and in the third from the auditory image centres.

In discussing the valence of the various " paths " I will for obvious reasons treat those which are evidently weak as early as possible. First, there is a path from the centres for ideas of objects to those for graphic motor images [*Ge–Schr* in Fig. 7]. We came across this path in the case of VOIT, and there, no doubt, its valence had become strong; but, we may be sure, only because the other lines of connexion had for years been barred. As a rule it must be weak, for otherwise lesions of the centres for articulatory motor and for auditory images would not seriously impair the ability to write.

Another path that must be weak as a rule is the one leading direct through the auditory image centre to that for graphic motor images [*Ge-Kl–Schr*], for in an overwhelming majority of the cases where there is lesion of the articulatory image centre we find abolition of spontaneous writing and derangement of writing to dictation, which must be laid entirely to the account of the path *Kl-Schr*, since the path from object-centres to auditory centres [*Ge–Kl*] is strong, as we learned when we were treating of spontaneous speech.

As to the line of connexion from object-centre through graphic image centre to the graphic motor centre, the first part of it includes four possibilities: (1) a direct path from object-centre to graphic image centre [*Ge–Schi*], (2) a path via the auditory image centre [*Ge-Kl-Schi*]; (3) a path via auditory and articulatory image centres [*Ge–Kl–Sp–Schi*]; and (4) a path directly through the last-mentioned centre [*Ge–Sp–Schi*].

The valence of the last " path " must be weak, for we have already learned that the first portion of it [*Ge–Sp*] is weak, though the later portion of it [*Sp–Schi*] will prove to be strong. As to the first of our possible connexions [*Ge–Schi* direct], we must recognise as a fact of normal psychology that in writing an association between ideas of objects and graphic images does take place; but I am not aware of any fact, normal or abnormal, which goes to show that this connexion is particularly strong.

The second of our paths [*Ge–Kl–Schi*] is strong in its first portion, as we know, but weak in its later portion, at any rate in the great majority of cases. As a rule, lesion of the centre for articulatory images involves abolition of spontaneous writing and considerable derangement of writing to dictation, and that

means that this " path " is weak. For in these cases ability to copy is preserved. Now copying may take place either (1) along the direct path from graphic image to graphic motor image centre [*Schi–Schr*], or (2) along the path via the articulatory image centre [*Schi–Sp–Schr*], or (3) along the path via the auditory image centre [*Schi–Kl–Schr*]. But in these cases the second of these paths is out of the question, owing to the lesion of the speech-centre; and so is the third, since writing to dictation is gravely impaired. Hence copying must take place along the direct path from graphic image to graphic motor image centre, which is, indeed, the most natural line of connexion, and the promptitude with which copying is effected shows that this path is of strong valence. That being so, the path from auditory to graphic image centre [*Kl–Schi*] must be weak in such cases, which, as I said, are an overwhelming majority; for if it were not weak, spontaneous writing would be performed along the path *Ge–Kl–Schi–Schr*, despite the lesion in the speech-centre; and a fortiori writing to dictation would take place by successive stimulation of *Kl–Schi–Schr*—a fortiori, because in writing to dictation the excitation in the auditory centres [*Kl*] has the intensity of the physiological correlates of sensations, and not merely, as in the former case, the intensity of the correlates of ideas.

In those very rare cases, however, in which lesion of the articulatory image centres does not occasion abolition of spontaneous writing and derangement of writing to dictation, strong valence of the path *Kl–Schi* is probably the reason. The other paths that may be involved are *Ge–Schi*, *Kl–Schr*, and *Ge–Schr*.

Now as to the third of the paths mentioned above [*Ge–Kl–Sp–Schi*]. The first and second portions have proved to be connexions of strong valence; we have only the last to consider [*Sp–Schi*]. No one would dispute the strength of the connexion between auditory and motor verbal images and graphic images, and, moreover, this is the only path that remains in the great majority of cases, whilst there are no facts which would lead us to suppose it weak even in isolated cases. So we may enter it as a strong connexion, although the reverse connexion [*Schi–Sp*] is probably, as we have seen,* of varying valence.

Lastly, there is the connexion of the two motor image centres, articulatory to graphic [*Sp–Schr*]. This we must assume to be

* *v.* Lecture X.—*7r.*

strong. A close connexion between these centres is rendered probable by the important part which the speech-centre plays in the analysis of verbal images into letters in writing, and it derives some additional probability from the fact that as a general rule derangement of writing runs nearly parallel to motor. derangement of speech, and not to derangement of reading; but still more from cases like one of ADLER'S,* and another of MAAK'S†, in which the patients retained the powers of writing spontaneously and to dictation, although they had lost the power of copying in the ordinary sense and merely drew the forms of the words they saw. There is no evidence that the connexion is ever weak.

So we arrive at the schema of writing given in Fig. 7, where

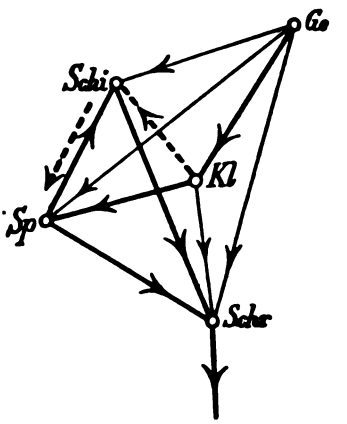

FIG. 7.

Ge represents the centres for ideas of objects, *Schr* the centres for graphic motor images, *Schi* the centres for graphic images, *Sp* the centres for articulatory motor images, and *Kl* the centres for auditory images.

Copying requires the "path" Schi–Schr, and the "path" Schi–Sp–Schr, the first portion of the latter varying in valence.

Writing to dictation takes place along the connexions Kl–Sp–Schr, and Kl–Sp–Schi–Schr, and may be assisted to some extent by the "paths" *Kl–Ge–Schr* and *Kl–Schi–Schr,* the latter only in very rare cases. In the main, then, reproduction of graphic motor ideas in writing to dictation depends immediately on two

* *Loc. cit.*, p. 53.

† *Schreibstörungen, verursacht durch isolierte centrale Alexie* (*Centralblatt f. Nervenheilkunde u. Psychiatrie*, 1896).

causes, visual verbal ideas and articulatory motor ideas or sensations, both of which have a strong tendency to reproduce graphic motor ideas.

Spontaneous writing depends chiefly on the connexions Ge–Kl–Sp–Schr and Ge–Kl–Sp–Schi–Schr, the immediate causes of stimulation of *Schr* which have strong valence being again excitation of *Sp* and of *Schi*. It is natural to suppose that, as writing develops, the line of connexion by way of *Schi* gets less used, but there is no pathological evidence that it ever becomes actually weak. In addition to these strong connexions there are several others, the importance of which for spontaneous writing becomes plain in certain cases where there is lesion of the auditory image centres, and yet the power of writing spontaneously is not abolished. GIRANDEAU reported such a case, and you should compare the use that CHARCOT makes of it. What renders writing possible under such circumstances must be the co-operation of connexions which are individually weak; they would be *Ge–Schr*, *Ge–Sp*, and *Ge–Schi*. Keeping in mind our definition of weak valence, you will find nothing paradoxical in this.

Comparing the schemata we have arrived at for reading and writing respectively, you will observe that the centre for articulatory motor ideas plays a far more important part in the mechanism of writing than in that of reading. That this is so we have inferred from pathological cases, and there seem to me to be two reasons for it: firstly, that analysis of words into letters in reading, when it does take place, must depend far more upon the function of the visual image centres than it does in writing; and, secondly, that such analysis is altogether much less important in reading, whilst writing is impossible without it.

I will now conclude this discussion of aphasias with a summary of the chief results of interest to normal psychology that may be derived from the material we have been reviewing.

I. The study of aphasic cases has rendered definite our views on *localization of the correlates of psychical processes* in the cortex. Before BROCA'S discoveries, as you are all aware, a reaction against the extravagant view of GALL—who localized the most complex mental activities, e.g. the sense of justice, the sense of truth, orderliness, and so on in different parts of the cortex—had led to the belief that all attempts at localization of mental functions must be renounced, since they entailed such extrava-

gant consequences. But clinical observation of aphasia and subsequent autopsies have taught us that *at any rate the physiological correlates of certain simple mental processes—to wit, the various sensations and reproduced sensory elements—are connected with different definite parts of the brain.*

II. Furthermore, the study of aphasia has, as we have seen, revealed many important facts regarding the psychical mechanism of speech, comprehension of speech, reading, and writing. For the details I refer you back to what I have said in this and in previous lectures.

III. Both in the mechanism of spontaneous speech and in that of reading we find this interesting condition realized: an idea *a* is doubly associated with an idea *c*, first through an intermediate idea *b*, and secondly directly; the association of *a* and *c* is extremely frequent; and yet *a* does not develop a strong tendency to direct reproduction of *c*, even though one may voluntarily recall *c* by means of *a* times without number, and may have no interest in a preliminary revival of *b*. In the mechanism of writing, on the other hand, the direct connexion attains strong valence. Plainly it must be particularly valuable for the purposes of normal psychology to discover the reasons of this difference.

First as to spontaneous speech. Here we see that the path leading from the centres for ideas of objects to those for articulatory motor ideas via the auditory image centres [*Ge–A–M* in Fig. 3] is stronger than the direct path [*Ge–M* in Fig. 3], despite the innumerable times that ideas of objects are associated with articulatory ideas or sensations. We should have expected that the indirect excitation of the correlates of idea *c* by those of idea *a* via those of idea *b* would be too slow to be effective, and would either retain no importance in face of direct excitation, or at any rate gradually fall out.

Why is it not so? Let us symbolize excitation of the object-centres by α, of the auditory by β, and of the articulatory by γ, corresponding to the correlated ideas which we have called *a*, *b*, and *c* respectively. Of the connexions α–β, β–γ, and α–γ, the first to be formed is α–β; association takes place between ideas of objects and auditory images of their names sooner than between the latter and articulatory images. This latter association, β–γ, not arising till the connexion α–β is already formed, will therefore involve the simultaneous formation of a weaker

association, α–γ. *Thus the formation of α–γ does not begin until the connexion α–β has had time to grow strong; and, moreover, circumstances are more favourable to the formation of β–γ than of α–γ. Accordingly, however often α and γ may be associated afterwards, α never acquires a strong tendency to reproduce c.*

It may perhaps be objected that the principal cause of the effect we are considering lies rather in the indistinctness and obscurity of articulatory motor ideas and sensations. The circumstances of reading refute this objection. In intelligent reading the dominant path is from graphic image centres to centres for ideas of objects via the auditory image centres [*Schi–Kl–Ge* in Fig. 6]. Let us call the excitation of the graphic image centres α, of the auditory β, and of the object-centres γ. The first point of difference between the circumstances here and those of spontaneous speech is that in reading the path β–γ is the first formed, and not the path α–β; the latter is not developed till β–γ has been formed, and then it brings the direct connexion α–γ with it. But *the principal difference is that in this case no one can maintain that the psychical correlates of γ lack clearness and distinctness, for they are ideas of objects, and none the less the connexion α–γ does not acquire strong valence, despite the very frequent association of its two terms.*

In the case of writing α must stand for excitations in the articulatory image centres, β for those in the graphic image, and γ for those in the graphic motor image centres. Here a strong connexion between α and γ does come about. The connexion first formed is in this case β–γ, but association of α and γ begins as soon, for the first lessons in writing involve speech-movements. So here there is at any rate not a prior development of the indirect line, as there is in spontaneous speech and in reading.

IV. The study of aphasia has, moreover, given us a clear notion of the degree of intimacy in the *connexions between ideas of objects and their names, and between the formation of concepts and speech.* I do not lay much stress on the former point, since there it seems to me possible to get at definite results without the aid of pathology. There are psychologists, however, who make apprehension of objects dependent on reproduction of names; but pathological observations show that ideas of objects are independent of such reproduction. As to the connexion between conception and language, SOMMER'S admirable investigations in the case of the man VOIT have taught us that formation of concepts may be effected independently of speech.

V. Further I may remind you of the results we arrive at, partly from the case of VOIT, partly also from observation of idiots, concerning *the connexion between ideas of objects and ideas of properties;* and also

VI. of what we discovered concerning *the power of reproducing sensible and non-sensible properties respectively;* and lastly

VII. concerning the *facilitation of the learning of senseless syllables by means of rhythmical accentuation.*

Moreover, we could derive from our pathological cases various general laws of association and reproduction which psychology has already ascertained in other ways. I may mention more particularly the importance for reproduction of differences in the intensity of psychical magnitudes, of temporal factors, of the co-operation of several factors at once, and of changes in the order of succession in a chain of associations. As to this last point, let me remind you that whilst we had to attribute strong potency to the path from the articulatory image centre to that for graphic images, we found the valence of the return path to be variable.

TWELFTH LECTURE

Aphasia and Amnesia—Amnesia in conditions of mental fog in epilepsy.

HAVING dealt with derangements of speech, of comprehension of speech, and of reading and writing, which are all by a terminological error comprised under the title of Aphasia, we must now, in accordance with the plan we laid down, turn to the examination of *Amnesia*, and our first task will be to demarcate amnesia from aphasia. By amnesia is meant *loss of the power to reproduce ideas*. But the aphasic derangements we have been considering are also due to loss of the power of reproduction; what right have we to separate them from amnesias? It is often replied that the abnormalities of aphasia depend upon organic lesions, whilst the cause of what is commonly known as amnesia is to be found in functional derangements, and so some writers, like SOLLIER*, contrast "organic" with "functional amnesias." If this etiological distinction is accepted, it would be better to speak of amnesias depending on organic or on functional conditions; but we have seen that as a matter of fact aphasias may be due to functional troubles as well as to organic lesions in the centres concerned. So I cannot accept the suggested differentiation. The real justification, it seems to me, for taking aphasia separately from the main body of amnesias lies in the fact that the associational connexions deranged in aphasia are of quite peculiar intimacy, depending, as they do, upon unusually frequent repetition. Strictly speaking, then, we have still to deal only with such forms of amnesia as concern the remaining kinds of associational connexions.

Let us begin with those forms that occur in *pathological states of mental fog*†. This term is used in mental pathology for

* *Les troubles de la mémoire.*

† *Dämmerzustände.* Cf. HACK TUKE'S *Dictionary of Psychological Medicine*, s.v. The term is there translated by "mental confusion." CHADDOCK, in his translation of KRAFFT-EBING'S *Lehrbuch der Psychiatrie*, uses "psychical cloudiness," or "states of clouded consciousness." I have used these latter terms as well as "mental fog" indifferently, and occasionally also a literal rendering of the expressive German term, but have kept Confusion as a synonym for Incoherence (*Verwirrtheit*).—*Tr.*

psychical alterations which consist essentially in a temporary dimming or clouding of consciousness—in a diminution of clearness of consciousness, that is—or in a temporary modification of mental life which involves the disappearance from memory of a more or less considerable part of one's past experiences. The two symptoms are frequently found together. It is usual to distinguish two kinds of these states of mental twilight, the epileptic and the hysterical.

The mental fog of epilepsy is a temporary alteration of consciousness which occurs in that disease, and a few words on the nature of epilepsy are necessary to a clear understanding of it. Epilepsy is the name given to a malady which in typical cases manifests itself in sudden fits of convulsions and general cramps with loss of consciousness. True epilepsy does not depend on any demonstrable anatomical changes in the nervous system, and is therefore called a functional nervous disease. It is due to a functional anomaly by which certain motor centres in the brain fall from time to time into a condition of irritability leading to motor discharge.

What is the connexion between epilepsy and a condition of mental fog? The fits of cramp with unconsciousness are sometimes preceded, but more often followed, by dimness of consciousness, and it is this condition of dim consciousness which is called mental fog. The alteration of consciousness has a perfectly definite stamp, though clinically we find the same complex of symptoms also occurring independently of cramps, in what is called psychical epilepsy.

The state of consciousness in epileptic mental fog varies greatly according to the degree of alteration involved, approximating sometimes to the total loss of consciousness which accompanies the epileptic seizure proper, sometimes to the clearness of normal consciousness. Before sketching its general characteristics, I will give you a concrete example.

A., a patient 23 years of age, was received into the asylum for the sixth time. Her mood is one of exaltation. She sings unceasingly with a tone of pathos and in a more or less connected fashion at different times.

"Just so, that is my husband." "You are the helper's helper; you are the doctor, you will and can help me." "Seen quite clearly, Eve on her death-bed, wrapped in a shroud, with a large collar; yes, that, that was the picture." Again: "Where is my husband? where does he linger? my husband who will and can

help me and that right heartily, and yet that is no good here; yes, a very good husband, has a very good clean conscience."

It is hard to fix her *attention* with questions. Yet at times she proves to be *oriented as to place and time*, and can give some account of her past; for instance, she knows that she has been in the asylum before. Sometimes she recognises people whom she often saw there last time, sometimes she does not, whilst there are others whom she *identifies wrongly*.

It was difficult to induce her to read a few sentences; she read correctly, but almost always misinterpreted the meaning, connecting it with her own relatives.

As to *clearness of consciousness*, it *fluctuated* greatly. As I have just said, the power of recalling past experiences varied at different times. Indeed the fluctuations were so marked that she noticed the fact herself and occasionally referred to it. For instance, one time that I was trying to test her sensibility for passive movements and she had to determine the direction of slight movements of a finger joint, she said to me, "Wait a minute till I get clearer."

Furthermore she manifested great exaltation of *self-feeling*, without having actual ideas of grandeur. At a later date when she was in a similar condition she did have ideas of grandeur, saying: "I am the goddess herself, the goddess of nature," and replying to the doctor's query, "Who am I then?" "You are a cursed hound"; but she was then altogether less clear in mind than at the time of which I am speaking now. In twelve days her foggy state was past, and she remembered neither that nor what she had sung, though she did remember having claimed some of the company as her brothers and sisters. Concerning the initiation of the twilight-condition she stated that a horrible anxiety had come over her—she felt as though she had committed some crime.

The marked *alteration of mood* that occurred in her case—after the preliminary anxiety her affective condition was one of exaltation—is almost invariably a distinct characteristic of the cloudy state in epilepsy. In one case the dominating mood is anxiety; in another, terror; in a third, religious exaltation; in a fourth, rage—which, as you know, often issues in acts of violence.

A second characteristic of this condition is the partial *loss of the power of recalling the past*, just as our patient could not re-

member having ever seen people whom she had really seen very often.

Mistaken recognition is often a third peculiarity: A. took attendants to be members of her family.

Fourthly, the ***power of concentration*** is always, without exception, greatly weakened: it was difficult to fix A.'s attention.

Fifthly, ***consciousness of personality*** is generally modified, self-feeling being either exalted or reduced.

Sixthly, there are marked ***fluctuations of consciousness:*** so marked in our case that the patient noticed them herself.

Seventhly, ***religious notions*** predominate in some cases; and

Lastly, when the state of fog is over, the events which occurred in it are ***recalled only in a very vague and general way.***

Psychiatrists regard as most characteristic the partial amnesia, the partial loss of memory for the events of the cloudy condition; and it is on this symptom that they have based hypotheses to explain the entire condition. As a rule they assume that the partial amnesia for events of the abnormal condition is due to ***decreased "intensity of consciousness"*** during it. That is the view taken by SAMT, PICK, FÜRSTNER, and JOLLY, among others, but I will show you, first, that it is beyond measure improbable that this is the one and only reason, in view of the etiology of this state of mental fog in epilepsy; and, secondly, that the hypothesis proves insufficient in particular cases.

In order to understand the condition it is important to determine where the centres are situated whose functional abnormality gives rise to it. They are, of course, the same centres as function abnormally in true epilepsy. Now it used to be thought that the convulsive seizures depend on lower centres,—for instance, in the medulla oblongata. Recently, however, the view has gained increasing support that their origin must be looked for in the motor regions of the cortex itself. For in the first place it has been found that tumours or injuries in those regions occasion seizures absolutely analogous to epileptic fits; and, secondly, experiment thas shown that electrical stimulation of them induces similar fits in animals, whilst in human beings the march of the convulsions along the different groups of muscles corresponds to the anatomical arrangement of motor centres in the cortex. So in all probability the motor part of the cortex is to be regarded as the starting-point of the fits.

But if epileptic clouding of consciousness involves abnormality of function on the part of the cortical motor centres, there must

result a corresponding functional abnormality in the cortical sensory centres, that is, in the sensory centres for the whole body, the anatomical-physiological basis of organic sensibility. Not only is this a certain consequence of accepted physiological laws, but in many cases of genuine epilepsy irritation of the sensory centres is perfectly evident in what is known as the sensory aura, by which is meant sensations which occur in different parts of the body as precursors of a fit.

But there is also an indirect way in which the alteration in the irritability of the motor centres may affect the sensory centres: it will occasion peripheral changes, and these changes will then give rise to sensations. We must therefore expect an alteration of organic sensibility to take a principal part in originating the abnormal condition of consciousness; we cannot allow that a difference in "intensity of consciousness" is the only factor to be considered. For even if the intensity of organic sensations were diminished, the result would not be a condition of consciousness identical in all other respects except a loss of intensity. Organic sensations are only a single constituent of the total consciousness at any moment, and the result would be an alteration of the whole complex, to some extent a qualitative change.

Now let us glance at particular cases and see how far this assumption takes us, that the subsequent amnesia is due to diminished intensity of consciousness during the state of fog. SAMT, whose work on Epileptic Insanity* has been of great service in elucidating the nature of this abnormal condition, describes a case in which the patient had afterwards some remembrance of his delirious utterances (temporary delusions, namely, and sense-deceptions), but none of a detailed anamnesic statement which he made in the abnormal state concerning the facts of his past life connected with his malady. SAMT regards this gap in his memory as due to lowered intensity of consciousness at the time he made the statement, whilst he explains the partial reminiscence of deliria on the ground that the patient had repeatedly occupied himself with them during his period of mental twilight, so that his consciousness of them was more intense, and consequently they were afterwards more easily recalled than the anamnesic story. But SAMT himself says on this very point: "He told his reminiscences in a clear and connected fashion, and when I cornered him with his delirious utterances, he argued with great skill"; and yet we are to believe that

* *Über epileptisches Irresein* (*Archiv f. Psychiatrie*) Bd. 5 *and* 6.

when telling his story he was in a state of consciousness of such low intensity that for this reason he could not recall anything about it the very next day!

No doubt it might be argued that reproduction of the events of one's own past, such as is generally noted as anamnesis, does not involve any great energy of consciousness on the part of the reproducing ideas, since the events have been so often recalled; but the statement that this patient made * contains a number of dates which are most unlikely to have been familiar to him, above all in their right order, and yet he afterwards confirmed all he had said.

I find it strange, too, that he was able to argue skilfully about his deliria at a time when, according to the hypothesis, his consciousness must have been at a low point of intensity. But I will not press that. It is *possible* that just as the conversation turned to the deliria one of those fluctuations of consciousness took place, which, as we have seen, are not uncommon in this condition. What is absolutely unintelligible is that he remembered only a part of his deliria, though he argued about them severally with great skill. Surely skilful argumentation presupposes an intensity of consciousness which cannot be so low as to account for partial lapse from memory on the very next day of the two or three subjects discussed.

A case of KRAFFT-EBING'S † also tells against this hypothesis. The patient had from childhood shown a fondness for romantic poetry and fantastical imaginations. "His favourite reading consisted of romances and tales of chivalry. Often he could scarcely distinguish what he read from reality. Whilst at his work he would often suddenly live through romantic scenes that he had read of or seen on the stage." By and by he came to have states of mental fog as well as epileptic cramps. I will cite one of his delirious utterances. Next day he had no memory of it whatever, and in view of the life-like way in which it depicts a situation you will see at once that the amnesia cannot be due to diminished intensity of consciousness. He starts perorating with great pathos: "Catherine of Scotland, hast gathered together thy horsemen? We bid them start. Collect thy companies. Catherine, my bride! Let us ride united on this our bridal day, our day of supreme joy, even though we must needs renounce the enjoyment thereof. Who dares spill the

* *Ib.*, pp. 138 ff.

† *Arbeiten aus dem Gesamtgebiete der Psychiatrie und Neuropathologie.* Heft 3.

royal blood? Rally! 'Tis sad to be disturbed on this fairest of days. The swords shall clatter, the cannon thunder, the trumpets blare; the walls of the city shall fall. Stand fast, my people, here is your king, Charles of Bourbon is with you. Haste, secure the gates! There on the hill they are planting the cannon. My people! Let all sing the Te Deum, and so soon as ye catch sight of the foe look up to heaven. My beloved people, stand true to your king! Catherine, gird on thy sword, defend, thou too, thy country's rights—blessing and happiness attend our people! Advance! The cannon thunder; it goes ill, he has his robber-king of Castiglione; Don Carlos shall yield living or dead. Slay him! On, on! [the patient charges with a chair at all about him] Catherine of Scotland lives for you. . . . Have ye not yet overtaken the assassin? My people shall not be thy victim. How they fight! God's blessing on you! Richly shall your blood be recompensed. Still am I unwounded; Catherine, thy heart merits the crown of bay."

There is another fact which tells against the hypothesis, a very interesting fact in itself, namely, that *in the condition of psychical twilight patients occasionally recall very remote events belonging to this condition, but cannot do so shortly afterwards when they have passed out of it.* The difference of the intervals from the event to its reproduction in the abnormal state on the one hand and to the ineffectual attempt to recall it in the normal on the other cannot account for the failure, since it is often a very slight difference, and would in any case tend to be counteracted by the preceding successful reproduction and also by what is *ex hypothesi* the higher intensity of consciousness in the normal condition.

WESTPHAL is the only writer, as far as I know, who takes a different view of the state of consciousness in the epileptic condition of mental fog. He talks of a profound derangement of consciousness, "as it were a new consciousness coming into existence for a time." But unfortunately his expressions do not make clear in what he conceives the alteration to consist.

I think it has now been shown that the hypothesis of a lowering in the intensity of consciousness does not suffice to explain the amnesic phenomena of this condition, and I will next proceed to develop my own view.

I have already pointed out that modification of organic sensibility must play a very important part, and in my opinion it is the explanation of the amnesic phenomena which we have

been discussing and which are the symptoms of most interest to us at present. One of the conditions of the reproduction of an idea *b* by an associated idea *a* is similarity of the total state of consciousness. At the moment that *a* reproduces *b* it is only one constituent of the total content of consciousness, and the remainder also co-operates in determining the reproduction. An essential modification of the total state of consciousness is therefore an essential modification of the conditions of reproduction, and may make the reproduction of *b* impossible. *Now in the present case there is such a difference in the total conscious complex between the state of fog and the normal condition, inasmuch as organic sensibility was essentially modified during the state of fog.*

In the light of this factor the explanation of the amnesic phenomena is obvious. An experience belonging to the period of mental fog can be recalled at the end of that period, even though the interval be long, but is beyond recall a very little later when the patient has passed out of the abnormal state, because the patient's organic sensations, which are *concausæ* of the reproduction, were still the same in the first case, but have undergone an essential modification in the second. In this way a phenomenon which on any other view remains a mystery becomes perfectly intelligible. Nor are we relying on a vague hypothesis: *such alteration of organic sensibility is not assumed* ad hoc, *but is proved to occur in other connexions as well as in these states of fog.*

It may perhaps have occurred to you to look for an explanation in another direction. You might argue that we are dealing with mental states which do not enter into an associational connexion at all. But the amnesia cannot be due to that; there are associational connexions really formed in the earlier state of consciousness between ideas *a* and *b*. In the abnormal condition they are actually connected. The amnesia does not consist in failure of *a* and *b* to occur spontaneously, but in inability to reproduce *b* when *a* is given.

Cases like those I quoted from KRAFFT-EBING and SAMT are also easy to understand from our standpoint. I will take this opportunity of citing another case of KRAFFT-EBING'S in which the form of amnesia is interesting and rare.

"L., a book-binder's assistant, aged 20, appeared at the public prosecutor's office in Vienna on the morning of 8 June, 1897, declaring that he had committed a murder in front of the entrance of the District Court. He stated that a man had pursued him

and therefore he had killed him; that he did not wish to be locked up, but only to be hanged. Would they kindly execute him at once? Were the gallows ready? When received into the hospital for mental diseases about 3 p.m. he appeared calm, without a trace of anxiety or confusion, knew at once that he was in a hospital, but had no notion why. He gave the impression of mental fog; his thinking was evidently impeded. Yet he replied to questions quite composedly, and gave the following account of himself in a connected story:—

" ' It was about four o'clock last night that a bad dream woke me up. I dreamed I was pursued by a man with a bare knife and could not get away. That woke me, but I could not calm myself nor settle to sleep again. About 6.30 I got up, had my breakfast, and started off to business, my way being along the Alserstrasse. When I got into the street I saw a man with a bare knife coming at me, just as my dream had warned me. I tried to get out of his way, but it was no use. In the end I was overcome with anger, and sprang upon him, hitting him on the temple with both fists, till he fell to the ground apparently dead. Then I took refuge in the Court-house hard by, pursued by the abuse of the crowd, and there I took my stand. What happened after that I don't know.'

" In fact there was a gap in his memory covering about seven hours, from the time he entered the Court-house until he was admitted into the hospital."

As soon as the period of mental fog came to an end, the amnesia for these seven hours lying between the beginning and end of it also passed away, and it can only be explained on the assumption that during those hours there was an approximation to the normal state of consciousness. If that was so, reproduction of the events of those hours would necessarily be greatly facilitated on the return to the normal condition.

Let me now say a word or two about the remaining phenomena of mental fog in epilepsy. First, as to the *alteration in affective condition.** It is simply due to the change of organic feelings which always goes with a change of organic sensations.

The *diminished power of concentration* is principally connected with a general diminution of mental power, at any rate during a great part of these clouded periods; at other times it depends more on the abnormal claims upon psycho-physical energy made by strong organic sensations and feelings.

* *Gemütslage.—Tr.*

The phenomenon of *false identification*, which is also characteristic of mental fog, must depend partly on the indefiniteness of perceptions which is a consequence of feeble concentration; but the modified organic sensations must also co-operate, for when perception takes place they will force on abnormal reproductions, so that the perceived object is assimilated to an unusual representation.

The connexion between the change in organic sensations and the *exaltation of self-consciousness*, which often occurs, is equally easy to comprehend. Organic sensations form a very important constituent of the consciousness of one's own body, and at the beginning of human development (in the child) this consciousness is a very prominent constituent of the consciousness of self. The child's self is its feeling and desiring body. In later life the body-consciousness is constantly receding and gives place more and more to psychical factors, but still organic sensations remain a component part of the consciousness of personality, and any essential change in them entails an essential alteration in this consciousness. The over-estimation of self in the case we considered must therefore be regarded as due to two facts: the first, that one component of self-consciousness became more intense and so made the remainder of the complex of ideas which belong to self-consciousness more prominent than usual; and the second, that the abnormally strong affective tone of the organic sensations was transferred to the rest of the complex.

There remain only the *fluctuations of consciousness* and the frequent occurrence of religious notions. The former are most easily explained by the assumption of fluctuations of irritability in the cortical motor centres; but it is impossible to say anything more precise at present. The preponderance of *religious notions* is certainly connected with the feelings of anxiety which so often occur in this condition. I had occasion to treat a patient who suffered from hallucinatory insanity with religious notions and anxiety. A dose of opium relieved his anxiety, and thereupon his religious ideas also vanished, to return as soon as the opium was withheld. Of course I do not mean that religious ideas and anxiety are identical, but the facts show that there was at least an association between them in this case, and it may be a similar association that causes religious feelings to occur so frequently with abnormal strength in epilepsy.

In these states of mental fog, then, we find modifications of organic

sensations (with which go allied modifications of organic feelings) *affecting first and foremost the reproduction of ideas, because they involve modification of the total complex of contents of consciousness; and they result on the one hand in amnesia, on the other in mistaken identification.* Furthermore, we have succeeded in showing that they co-operate in the production of a number of other phenomena, some of which have still to receive separate treatment.

THIRTEENTH LECTURE

Amnesia in states of mental fog in Hysteria; states of double consciousness.

HAVING treated of *mental fog* in epilepsy we will now examine the same condition as found *in hysterical subjects*. But I must begin by explaining what hysteria means. So much is clear, that in hysteria we have a mental disorder which may be combined with bodily abnormalities. But this is not peculiar to hysteria, and in order to arrive at a more precise determination we had better look more closely at its several symptoms. It is usual to distinguish bodily and mental symptoms, as follows from what I have just said; but the bodily must be regarded as depending on mental conditions. Examples of the bodily symptoms are anæsthesias affecting various senses, paræsthesia, paralysis, contractures, cramps, and so on. The characteristic mental symptoms usually given are suggestibility, "emotivity," and weakness of will.

This last I am not inclined to recognise as an essential symptom. It is not by any means to be found in all hysterical persons, and it is often found in a morbid degree, such as is here intended, where there is no hysteria. When it does occur in hysteria, it depends upon affective abnormality, as we shall see when we come to speak of anomalies of volition, the dependence being in part direct, and in part indirect, in that the affective peculiarities of hysterical persons have a definite influence upon their trains of thought.

The derangement of affectivity, however, does seem to me characteristic of the disorder. It consists firstly in great instability of affective states, and secondly in abnormal intensity of the concomitant bodily phenomena*, more particularly—and so far as I know this point has never been emphasized before—of those accompanying *reproduced affective states*, which are, of course, themselves abnormally intense in consequence. By

* Cf. MORBIUS, *Neurologische Beiträge*.

reproduced affective states I mean such as are attached to ideas of past experiences that possess strong affective colouring, and the unusual intensity of the accompanying bodily changes is not only clear evidence of the abnormal affective condition of hysterical subjects, but is also of great importance for their mental life in general.

I am inclined to regard the symptom of suggestibility or auto-suggestibility * as dependent on the affective anomalies, and first of all I wish to point out that it is in my opinion not due to the same cause as suggestibility in the hypnotic state. No doubt narrowing of consciousness is a *conditio sine quâ non* in both cases †, but this narrowing is the result of emotional factors in hysteria, which cannot be said of it in hypnosis. The consciousness of hysterical subjects is narrow because their anomalous affective condition results in abnormal preponderance of affective states and ideas connected with them. To mark this difference I use the term " hysterical suggestibility," indicating thereby that in an hysterical person the idea of a possible bodily or mental change may, when united with an emotion that finds an echo in his general affective-conative life ‡, result in the change occurring with abnormal intensity. Thus the mere apprehension of possible paralysis of an arm on this or that occasion may bring actual paralysis about. O. VOGT § describes the origin of paræsthesia by suggestion in a patient of his as follows :—

" A patient has paræsthesia in the left arm, due to neuritis. He thinks he has tabes. He goes to a doctor. The doctor tells him there is certainly not tabes as long as the formication is confined to one side. He then becomes apprehensive that the formication may occur on the other side as well. Next day it is as he had feared, he has violent paræsthesia in the sound arm. Its purely functional nature is clear from the fact that a little kindly reassurance drives it away permanently. So its cause is to be found in the preceding apprehension, which contained a corresponding terminal idea‖, and led to an abnormally intense result. It was a case of realized suggestion, of conscious auto-suggestion."

* Cf. FOREL, *Das Unterschied zwischen Suggestibilität und Hysterien* (*Zeitschrift f. Hypnotismus*, 1897).

† Cp. WUNDT, *Hypnotismus und Suggestion.*

‡ *Gemütsleben.—Tr.* § *Zeitschrift für Hypnotismus*, 1897.

‖ *Zielvorstellung.* Cf. Lecture XV, p. 160.—*Tr.*

The most difficult of the bodily anomalies to explain are perhaps the anæsthesias. It is certain that they depend on mental conditions,* but we cannot yet say definitely how precisely they originate. In the majority of cases JANET'S hypothesis is, I think, the most probable, that they are an immediate result of the hysterical narrowing of consciousness.

Owing to the narrowness of his field of consciousness, says JANET, "the patient can no longer perceive more than a couple of elementary sensations at once, and he is obliged to reserve his small power of perception for the sensations which rightly or wrongly appear to him the most important, the sensations of sight and hearing. To have consciousness of what is seen and heard is of paramount necessity, and he neglects to perceive tactual and muscular sensations, thinking he can do without them. At the outset he might perhaps still turn to them and take them into his field of personal perception, at least for a moment; but, the chance not presenting itself, the bad psychological habit is slowly formed. Nothing is more serious and obstinate than these mental habits. There is a crowd of maladies that are only psychological tics. One day, then, the patient—for he has truly become one now—is examined by the physician, who pinches his left arm and asks him if he feels it; and to his great surprise he is obliged to confess that he has no longer any conscious sensation. The too long neglected sensations have escaped his personal perception; he has become anæsthetic." †

In other cases hysterical suggestion or auto-suggestion co-operates. As we know, it depends on narrowing of consciousness, and the only difference is that in cases such as JANET speaks of an alteration takes place without being previously represented, whilst in these other cases the nature of the change corresponds to and depends upon the content of a foregoing idea.

Hysteria then, we find, is a mental disorder which may involve bodily anomalies due to mental conditions; and these mental anomalies are of an emotional kind, abnormal intensity of the bodily phenomena which accompany affective states being the most remarkable, especially in the case of reproduced affective states. The remaining symptoms we regard as consequences

* Cf. JANET, *L'état mental des hystériques.*

† *Ibid.*, pp. 43 ff.; CORSON'S translation (*The Mental State of Hystericals*), p. 39. I have here and in the following Lectures followed this translation, with a few minor changes.—*Tr.*

of these, and we shall find in particular that the facts which have led some authors to assume a splitting of consciousness into parts are comprehensible without that assumption.

Having explained in the last lecture what is to be understood by mental fog or twilight, I have now only to explain what is meant by the term in the case of hysterical persons. On this point there is a rich body of material available for psychological investigation, and I shall begin by selecting cases of a single type—cases of *double consciousness*, as it is called. I will illustrate the type by a concrete instance.

SCHROEDER VAN DER KOLK* had an hysterical patient who exhibited the following phenomena: "After she awoke one day there set in the initial movements of St. Vitus's dance; she kept swinging her hands to right and left in regular time. This lasted half an hour. On coming to herself again, she behaved just like a child. Next day the spasmodic movements recurred, but when they stopped she behaved like a reasonable girl, talked good French and German, and proved well-read. She knew nothing of the day before; her memory referred only to the last day but one. But on her childish days she remembered the events of other childish days."

In the normal condition, you see, she can recall her acts in previous normal states, but not experiences belonging to her abnormal periods; whilst in her abnormal condition she can recall what happened in previous abnormal states, but apparently cannot recall her normal periods.

How are we to explain these facts? A number of recent writers, such as BINET†, JANET, DESSOIR‡, and MOLL§, with whom BREUER and FREUD‖ also associate themselves, assume that even in normal people there exists side by side with the normal consciousness we know of another consciousness of which we ordinarily know nothing; in the abnormal periods, they say, it has become the dominant consciousness, and they call it the lower, and the normal the higher consciousness. In normal mental life, they tell us, this lower consciousness is operative in acts which we perform in a condition of distraction, and it also comes into play when we exercise two mental activities simul-

* *Handbuch van de pathologie en therapie der kranksinnigheid.* (German translation by THEILE.)

† *Les alterations de la personnalité.* ‡ *Das Doppel-Ich.*

§ *Hypnotism.* ‖ *Studien über Hysterie.*

taneously; but it does not come into full force, this second personality in us, except in abnormal conditions.

When there is "total amnesia," as it is called, in one condition for all that has happened in the other, the explanation offered is that in the one case experiences of the higher consciousness are concerned, in the other experiences of the lower. But as a matter of fact, when we examine these cases of alternating consciousness more closely, we do not find total amnesia, at any rate not for the primary state in the secondary. Let us take a nearer view of certain cases in which the loss of memory of the primary state during the secondary is as complete as we ever find it. I will cite first a case of WEIR MITCHELL'S *.

"Mary Reynolds in her childhood seemed to enjoy good physical and mental health; she was intelligent, calm, somewhat reserved, and sad. About eighteen she had a few syncopes and hysterical attacks. After one of these attacks, exceptionally violent, she remained insensible, blind, and deaf. Five or six weeks later her senses returned gradually, but then she sank into a profound sleep which lasted twenty hours. *When she awoke she had lost absolutely all remembrance; 'she was as a being for the first time ushered into the world.'* All that she had retained of the past was the faculty of pronouncing a few words instinctively and without attaching any meaning to them. 'Her eyes were virtually for the first time opened upon the world.' Persons, houses, fields, trees, all seemed unknown things, she had to learn everything anew; 'in a word, she was an infant, just born, yet born in a state of maturity.'" On the other hand "we see these remembrances manifesting themselves every moment; the patient re-learns extremely fast; she knows an old song better than a new one."

WINSLOW'S † is another case of similar violent derangement of the power to recall experiences of the primary condition in the secondary. This was the case of a young lady with alternating consciousness, who had lost all her knowledge in the secondary condition: "her memory was a *tabula rasa*." But here again the total amnesia was only apparent; it is stated that she re-acquired what she had known with uncommon rapidity, and that must mean some connexion between the consciousness of secondary state and that of the primary.

* From JANET'S abstract, *Mental State of Hystericals*, pp. 86, 98. [For a fuller account and references cf. JAMES, *op. cit.* I. p. 381.—*Tr.*]

† *On obscure diseases of the brain*, pp. 418 ff.

So there is invariably a connexion between lower and higher consciousness in these cases. The problem is how it comes about.

Further, the *degree* of amnesia varies in the different states. An interesting connexion between the consciousness of the abnormal and that of the normal state is to be found in the case of DR. AZAM's often-quoted patient *.

" Félida in her normal condition appears well educated, but exhibits a melancholy, peevish disposition. She is serious and talks little, has a determined will, and is industrious at her work. She suffers from acute pains, and as a rule does not speak except in answer to questions. Her thoughts and her replies are perfectly rational. Almost every day she falls into her secondary condition of natural somnambulism, either without any visible cause or under the influence of emotional excitement.† Without any warning her head sinks on her breast, her hands slip down powerlessly upon her body ; she looks as if she were asleep. But after two or three minutes she wakes up, and now her temper seems entirely changed. She raises her head, opens her eyes, welcomes her visitors. Her features are bright, her expression is gay ; she sings as she goes on with her sewing. She looks after her domestic duties, walks about the town, and pays calls ; in all her movements and gaiety she is like a girl of fifteen. Her former sadness has given way to merriment, her vivacity verges on exuberance, her sensitiveness to all impressions is remarkable. In this condition she remembers all the events of her normal life, whereas in her normal condition she knows nothing of what has happened during her somnambulism. The secondary condition is far superior in respect of the development of her mental qualities, and in contrast to the primary she calls it her rational life. It usually lasted 3 or 4 hours, occurring daily, and then passed into a slumber of several minutes' duration, from which she awoke again into her normal state. Thus according to AZAM the two phases of her life are absolutely sundered. It is true of hypnotic subjects also that in the somnambulistic stage they are generally aware of events belonging to their waking life and to previous hypnotic states, whereas in their waking condition they have no memory of what has happened to them during hypnosis. At a later time Félida's secondary condition

* *Hypnotisme, Double Conscience*, etc. The following account from SCHRENCK-NOTZING, *Über Spaltung der Persönlichkeit.* [For other details cp. MYERS, *Human Personality*, etc. I. p. 334.—*Tr.*]

† *Gemütsbewegung.—Tr.*

came to last for months on end and filled nearly the whole of her life."

In short, then, Félida suffers from hysterical alterations and alternations of consciousness, such that in her normal condition she is aware of past experiences belonging to that condition, but knows nothing of her abnormal state; whilst in the abnormal state she can recall events that have happened in similar states as well as events belonging to her normal condition. Moreover she is normally peevish and reserved, but in her secondary condition she is vivacious and merry.

In this case the lower consciousness encompasses the higher, whereas in most cases of alternating consciousness the lower knows very little about the higher. To what is this difference in the connexion due? The books give us no answer to this question: the theory of higher and lower consciousnesses leaves us in the lurch at this point.

But more than that, if we are to assume two different consciousnesses, we ought logically to assume more than two. BURROT and BOURRU * have described a case in which six different conditions alternated, each having its special field of memory.

And lastly our ordinary mental laws are sufficient to explain these pathological facts, which the theory of higher and lower consciousnesses fails to explain. There are several factors to be considered. First and foremost an essential *modification of organic sensations*, for that is an invariable occurrence in hysterical mental fog. Its effect is very evident in the following case of JANET'S.

The patient had totally forgotten the preceding three months. All attempts at resuscitating her memory by means of hypnosis had failed. "Despite all our attempts, prolonged during six weeks," said JANET †, "I could not succeed in making her recover the memory of that long period. As is frequently the case with very ill hysterical patients, she presented a somnambulism very unstable, continually changing, with occasional spasms and small convulsive accidents. One day, as she was in one of these accidental somnambulistic states, she said to me spontaneously: 'You have often asked me what happened to me in the months of August and September. Why could I not answer you? It was so simple. I know quite well now that I did

* *Changements de personnalité.*

† *L'état mental*, etc., pp 116–7; *The Mental State*, etc., pp. 111–2.

so and so. . . .' The remembrance of the three forgotten months had come back entirely, as I was able to verify. As soon, however, as this somnambulistic state changed, and she entered the waking state or any other somnambulistic state, those remembrances totally disappeared again. I tried to discover what there might be unusual in this state, and was struck with a discovery which I still think interesting. In this particular somnambulism which brought back her remembrances Rose suddenly recovered tactual and muscular sensibility on her right side, whilst in all her other states she was always entirely anæsthetic. On the other hand, thanks to some information I was fortunate enough to obtain, I learned that during the whole period of the three months she had forgotten she was sensitive on the right side though hemi-anæsthetic as to the left."

Thus so long as her skin and muscles were totally anæsthetic she could not recall the events of a condition in which the anæsthesia had been confined to the left side, but as soon as her right side ceased to be anæsthetic, her memory for that period returned.

We saw in the last lecture how a modification of organic sensations affects memory, namely, by introducing an alteration in the *concausæ* of reproduction. In the same way it makes the phenomena of double consciousness perfectly intelligible.

When one abnormal state is after a normal interval succeeded by another abnormal state, in which there is a similar alteration of organic sensibility, then, as we have seen, the events of the first abnormal state can be recalled. But that is not so in the normal interval. During the normal interval there is partial amnesia for the events of the first abnormal condition, owing to an essential modification of the *concausæ* of reproduction. In the subsequent abnormal state memory is restored, because the general conscious complex is once more the same as it was in the first state. Thus we can understand how the amnesia for normal periods may vary in different abnormal conditions when it is out of the question to refer the variation to corresponding alterations of the general intellectual powers. Similarly with the different degrees of amnesia for abnormal in normal conditions; I need not go into the details.

Besides changes of organic sensibility another factor that has to be taken into consideration in most cases is *variation in breadth of consciousness*, which fluctuates greatly in hysterical persons and often alters at the beginning of abnormal periods. Here,

then, we have a second modification of the general complex of conscious contents.

Lastly, we ought perhaps to mention alterations of the blood-supply to the brain, resulting from changes of mood.* But, anyhow, it is the modifications of organic sensibility that play the chief part.

However, the theory of higher and lower consciousnesses is intended to account not only for these successive disintegrations of consciousness that we have been considering, but also for *simultaneous disintegration*, which is said to be specially pronounced in hysterical persons. We are told of abnormal "fissibility" of consciousness in hysteria, as if this were an original property of the hysterical consciousness; but I believe I can show you in a number of carefully observed cases not only that the phenomena referred to are secondary, but also how they originate. I shall keep to the cases so excellently described by BREUER and FREUD, though I am sorry to say that they also adopt the theory of two consciousnesses.

A patient suffering from purulent rhinitis was sent to Dr. FREUD by a specialist for diseases of the nose, because he found her much troubled by subjective olfactory sensations, which were combined with painful feelings that indicated an origin in some unusual mental conditions. The sensations themselves consisted in the smell of burnt pudding.

FREUD attempted to ascertain the cause of this phenomenon by inducing hypnosis. When the patient was hypnotised he asked whether she remembered what first occasioned this smell of burnt pudding, and she gave the following account of the matter. "It was about two months ago, two days before my birthday. I was with the children in the schoolroom"—she is a governess, and the children were two girls—"and was playing with them at cooking, when a letter was brought in that the postman had just left. I knew from the postmark and handwriting that it was from my mother in Glasgow, and was going to open and read it when the children rushed at me and tore it from my hand, crying, 'No, you mustn't read it now; it's sure to be for your birthday; we'll take it away from you.' While they were playing about me a strong odour suddenly spread through the room. The children had left the pudding they were cooking and it was burnt. Ever since the odour pursues me;

* *Gemütsstimmung.—Tr.*

it is really always there, and grows stronger when I am excited."

"Do you see the scene distinctly in your mind?"

"As vividly as when it happened."

"What was there about it to excite you so much?"

"I was touched by the children's kindness to me. . . . The fact is I had thought of going home to my mother, and the idea of leaving the dear children weighed on me."

She explained that other women in the house had been intriguing against her, and so she had given notice to the father of these girls, and he had asked her to think it over for a couple of weeks before coming to a final decision. She was in this period of hesitation at the time.

"Thus the analysis of the hallucinatory smell seemed complete," FREUD remarks; "it had once really been objective, and (more than that) had been intimately associated with an experience, a little scene, in which there had been a strife of conflicting emotions, regret at leaving the children, and vexations which drove her to decide upon going. Her mother's letter naturally enough reminded her of the motives to this decision. her idea being to go home to her mother. The conflict of emotions had raised the moment to a trauma, and the associated sensation of smell persisted as a symbol of the trauma. It had still to be explained why it was just that one smell that was selected from all the sense-perceptions involved in the scene to serve as a symbol. But I was already prepared to recognise the chronic nasal trouble as explaining that, and in response to a direct query she stated that just at that time she had had such a heavy cold in her head that she could scarcely smell anything, but in her excited condition she did notice the odour of the burnt pudding."

One point was still mysterious. "Why did not the whole affair remain on the level of normal mental life? . . . Why did she not constantly recall the scene itself, instead of the connected sensation which she preferred as a symbol for the reminiscence?" This was not the case of an old hysterical subject, but of hysteria acquired through this very mental trauma. Analysis of similar cases had taught FREUD "that where hysteria is said to have been recently acquired there is one psychical condition indispensable: an idea must have been intentionally driven out of consciousness and excluded from the working of association."

Further examination during hypnosis revealed in response to

direct interrogations that the patient had at times cherished the hope of taking the place of the children's mother. Recently, however, this thought had disappeared altogether, after she had long been at pains to drive it out of her head, since it distressed her to foster an inclination towards the man she was serving. So this idea had been split off from her consciousness, but continued to have its effect there in the sensation of smell with its strong affective colouring.

In the intentional repression of an idea FREUD sees the cause of what he calls "conversion of the sum of excitation." "The sum of excitation," he says, "which may not enter into psychical association, takes the wrong road, to bodily innervation, all the more readily. The repression of the idea could only be due to an unpleasant feeling, to incompatibility between the idea to be repressed and the dominant ideational mass of the self. But the repressed idea avenges itself by becoming pathogenic." By "conversion," then, FREUD means "transformation of psychical excitement into persistent bodily symptoms."*

Before I discuss this case I should like to give you a short account of another similar one. The patient in question was hysterical and complained chiefly of acute pains in her legs, particularly in a definite area on the front of her right thigh, where there was extreme hyperalgesia of the skin and muscles. Yet "when I pinched her skin or muscles," says FREUD, "her expression did not match the pain which she said she felt," so that he had to conjecture that "probably it matched better with the content of thoughts which were hidden behind the pain and which I was now reviving by stimulating areas of the body associated with them."

Examination in hypnosis revealed that in this case, as so often happens, the hysteria had been acquired during a long period spent in nursing a relative. She had nursed her father for a year and a half.

The principal details are these. She was induced one day by her relatives to leave her father's sick-bed and go to a party, where she met a young man whom she regarded with affection. "She meant to hurry back early, but they insisted on her staying, and she consented when he promised to escort her. She had never felt so warmly towards him as on the way home. But when she got back, at a late hour, she found her father much worse, and she reproached herself bitterly for having spent so

* *Op. cit.*, pp. 97 ff.

much time on her own enjoyment. This conflict resulted in the whole affair being driven out of consciousness. Yet it made itself felt through a connexion into which it entered with a sensational complex that was frequently presented to her at the time. Every morning she used to lay her father's leg, which was much swollen, across her thigh, in order to change the dressing. That gave rise to the sensations in question, and the area of her thigh, as she discovered to her astonishment in the course of the examination, was identical with the area where she now felt pain."

Here again FREUD perceives the mechanism of "conversion"; "that is, in place of the mental pain which she had spared herself she had bodily pain, and so a transformation took place, which was so far to her advantage that she escaped from an intolerable mental condition, though at the expense of incurring a mental anomaly, disintegration of consciousness, and bodily suffering in the shape of those pains."*

The facts present us with two problems. We have to explain (1) the process of driving ideas out of consciousness, and (2) the growth of the connexion between the repressed ideas and the other mental states concerned.

The former should be the easier problem to solve. In normal mental life psychical magnitudes are repressed by diverting attention from them. Now hysterical persons have an abnormal power of exclusive concentration, as we shall see later on, when we come to speak of anomalies of will due to emotional anomalies. Consequently they are bound to furnish notable instances of repressed ideas. We shall see later on, however, that two other causes are also operative.

It is certainly not so easy to make sure how repressed ideas manage to affect the life of clear consciousness. In FREUD'S cases, as we saw, they were accompanied by strong affective states, and with these feelings there became associated some sensation which was particularly prominent in consciousness, like the sensation of smell in the first case or the sensation of pressure on the thigh in the second. The line of connexion therefore is, Idea—affective state—sensation.

Now there are several factors tending constantly to increase the intimacy of this connexion after the idea's partial or complete repression. When the idea has dropped out of the life of clear consciousness, its chances of becoming associated to other

* *Op. cit.*, pp. 126 ff.

ideas fall to a minimum, and so, if anything does tend to reproduce it, there are no other associates to be revived, but the process is always along the old line—affective state—reproduced sensation. The result must be to make this connexion more intimate.

The abnormal intensity of affective states in hysteria, and especially of reproduced affective states, works in the same direction. Increase in the strength of this member of the series is bound to solidify the association, and the influence of reproduced affective states in this way must obviously be particularly great. But there is also an indirect way in which the abnormal intensity of feelings must strengthen the association, for the vaguest echo of the repressed idea will be sufficient to arouse them, and so the association of the three members of our series will be repeated more frequently.

Its intimate attachment to the two other members will make the idea, when once it has been repressed, recede further and further into the background of consciousness, and *the difficulty of discriminating it separately from the entire complex will increase as time goes on.* As we shall see by and by, this is a point of great importance for the explanation of certain hysterical amnesias.

Finally there remains one other factor to be mentioned which helps on the intimate association or fusion of the second and third members of the series. One of BREUER and FREUD'S patients attributed her hysterical habit of stuttering to an experience which she described in the following words: "As one time the horses bolted with the carriage when the children were in it, and at another time I was driving through the forest with the children during a thunder-storm, and a tree just in front of the horses was struck by lightning, and the horses shied, and I thought to myself, 'Now you must keep quite still, for you'll make the horses more frightened by shrieking, and the coachman won't be able to hold them at all'—it was then it began." She used to stammer after that whenever anything startled her, no matter what it might be.*

Speaking generally, then, we may say that the connexion between the second and third members of the series is all the more likely to become very close, because similar affective conditions are apt to repeat it, though their relation to intellectual processes is often very different.

* *Op. cit.*, pp. 46–7.

Thus we are able to explain simultaneous disintegration of consciousness, as represented in these cases, without needing to have recourse to the theory of higher and lower consciousnesses ; it is due to abnormal intensity of affective (and especially of reproduced affective) states, combined with the abnormal power of exclusive concentration which hysterical persons possess—and in the end this abnormal concentration is itself due to the abnormal intensity of their feelings.

As to the process of repressing an idea, we shall see next time in another connexion that it may depend on factors which we have not as yet mentioned.

FOURTEENTH LECTURE

Retrograde amnesia—Anterograde amnesia—Systematic amnesia.

IT is usual to distinguish various kinds of amnesia. The term *general amnesia* is used when the derangement affects the entire memory, the term *partial amnesia* when it affects memory for a part only of the past. Partial amnesias are subdivided into *localized* and *systematic*, according as memory is lost for events of a definite time or events of a definite kind.

In the mental fog of epilepsy and hysteria we met with partial amnesias of the localized type. Of this type those which are called *retrograde* usually receive separate attention. This term is used when, as the result of some morbid process, there is a derangement of memory for events of the period immediately preceding the onset of the malady, the subject having been to all appearance in a normal condition of mind during that period. Instances of the kind occur after epileptic or hysterical fits, injuries of the head, suicidal attempts, and the like. The amnesia may cover hours, days, weeks, or even years, it is said. I will give you one or two examples.

In a case of CHARCOT'S " a woman on the receipt of false news of her husband's sudden death falls into a delirium with frightful hallucinations; it lasts for three days, though broken by a period of lethargy that lasts one day. When the delirium is over, it leaves behind an extensive amnesia. Her memory for the six weeks immediately preceding the attack is absolutely lost; she cannot recall having been bitten by a mad dog, nor that she had gone to Paris and been treated in the Pasteur Institute. CHARCOT calls this part of her amnesia retrograde, because it covers a period during which it can be proved that she did not show the least trace of mental disorder. Her memory for more remote events is of normal acuity."*

JANET reports a case of the same kind. " I saw a woman in

* Quoted from NAEF, *Zeitschrift f. Hypnotismus*, 1897.

the Havre hospital who had had an accident of this kind. In consequence of an attack in November, a few days before her coming to the hospital, she remained paraplegic, and had forgotten all that had happened during the preceding three months. She could recount every detail of her life during the beginning of August, but could say nothing of what had happened in September and October." The seizure was hysterical. *

JANET says of retrograde amnesia that it opposes the greatest difficulties to explanation. I am not prepared to say this when it depends on hysterical conditions, though it was just hysterical cases that he had in mind. The problem is decidedly harder in cases resting on an epileptic basis, of which I shall have more to say by and by.

JANET'S patient just mentioned is the same woman of whom I spoke in the last lecture. You will remember my saying that when anæsthesia of her skin and muscles ceased to be confined to her left side and affected both sides of her body at once, the result was that she forgot the hemianæsthetic period, the amnesia lasting till the anæsthesia again became confined to the left side. So in her case the retrograde amnesia—retrograde, that is, relatively to the seizure which brought on the alteration of consciousness—is due to an essential change in the sensations derived from her body (which are *concausæ* of reproduction) during the period for which memory is lost.

Very probably a similar factor is operative in CHARCOT'S case as well. The patient's condition when the amnesia began bore very distinct marks of abnormality, starting with delirium as the result of emotional shock, together with frightful hallucinations, and displaying also—what I omitted to mention—anterograde amnesia, or inability to notice things. Nor is it easy to maintain that her condition was normal during the period she afterwards forgot. That period includes the bite by a mad dog and the journey to Pasteur's, events which must have profoundly affected an hysterical woman. If in both conditions there was a deviation from normal organic sensibility, as seems to me most likely, the same explanation will apply as in JANET'S case.

The circumstances are more complex when retrograde amnesia is developed after an epileptic fit. ALZHEIMER † reports the case of a man who after repeated fits lost his memory of the

* *L'état mental*, etc., p. 87; *The Mental State*, etc., p. 83.
† *Allgemeine Zeitschrift für Psychiatrie*, Bd. 53.

preceding year and a half, a period during which his behaviour had been quite regular. Up till eighteen months before he was admitted into the Frankfort asylum he had lived in Russia. "Losses in business and increased severity in the regulations affecting Jews domiciled in L. led to his emigrating to Germany. His wife states that he made all the necessary arrangements in L. as well as possible and took every precaution for the long journey that she and the children were about to undertake. In Frankfort things went ill with him, he could not get work, had trouble to win a livelihood, and so fell into a very depressed state of mind*. When he had been there a month his fits came on frequently. After that he seemed very dull, scarcely spoke, and did not appear to understand what people said to him. So a few days later he was brought to the Jewish hospital, where he stayed seventeen days, though he became quite intelligent again in nine days. It struck his wife and his doctor even then that he had lost his memory for the period of his residence in Frankfort immediately before his seizures, but it returned to him in the course of the next few weeks. All went well for four months, fits were infrequent, and if they left any injurious consequences these were not noticed; he seemed mentally normal in every respect. A week before his admission into the asylum the fits again became more frequent," and they reduced him to a condition of incoherence, which lasted several days. When that was passed he proved to have forgotten the last year and a half of his life. He thought he was still living at L. in Russia, could not believe he had left Russia for Frankfort, was ignorant of the birth of his two youngest children, and put the age of the two elder ones two years below what it really was, and similarly with the time he had been married. Restitution of memory took place gradually.

You might feel inclined to suppose that he must have been in an epileptic condition of mental fog during the eighteen months he had forgotten, but against that, as ALZHEIMER rightly insists, are, first, the length of the period, and, secondly, the man's perfectly regular behaviour. It is unlucky, of course, that in these cases the patients have hardly ever been under expert observation during the forgotten period. ALZHEIMER does report one case, however, in which this desideratum is fulfilled, the retrograde amnesia covering six weeks, during which the patient had been under a psychiatrist's observation for several

* *Gemütsstimmung.—Tr.*

days; he had not shown any signs of derangement of consciousness, so that evidently it is not a matter of epileptic fog *.

How are we to interpret these cases then? One thing is certain, the condition in which the amnesia arises is marked by general weakness of the power of reproduction; the repeated fits have resulted in exhaustion. Plainly, this weakness must be most marked for the events of the period immediately preceding a fit, because they have been less frequently recalled than more remote events. Still that is not enough by itself. As we shall see later on, it is not the fact that less recent events are always the most deeply imprinted, though some writers have thought so. I can prove to you of all ALZHEIMER'S cases—and we are gravely in want of any more accurately described—that during the forgotten period the receptivity for new material for memory, the power of noticing, was considerably weakened.

Take that patient with retrograde amnesia for the last year and a half. During that period, as I told you, he was in a mood of great depression, which occasionally, though not for long at a time, turned into complete apathy. Under those circumstances his power of taking notice must have been very weak, and even had his subsequent condition been normal he would have found the events of that period exceptionally hard to recall. Can we wonder that they were entirely beyond recall after repeated fits had enfeebled his general power of reproduction?

Again, in that other case I quoted from ALZHEIMER, though the patient was under expert observation during the forgotten period, and so we are sure that his condition was not one of epileptic fog, still he had more frequent and more violent epileptic fits then than ever before, and they must have weakened his power of taking notice, with the same result as in the other case.

In a third case of ALZHEIMER'S a period of one week is forgotten, which began with the death of the patient's mother, the journey to her funeral, and the like—events which constitute a factor of the same kind as in the first case.

Emphasis has often been laid on the fact that in cases like these two conditions of consciousness are separated by an unconscious period; but, as I explained when speaking of states of mental fog, this point does not seem to me to have much significance.

The matter is simpler, I think, when retrograde amnesia does not cover more than a short period before a fit, say half an hour

* *Ibid.*, pp. 494 ff.

or an hour; for then, in addition to weakness of the power of reproduction, we may assume with great likelihood that the approaching discharge occasions an alteration of organic sensibility.

SOLLIER * justly insists that, when retrograde amnesia rests on a traumatic basis, hysterical symptoms are almost invariably developed.

Another kind of localized amnesia that has received special attention is the *anterograde*. Here events are forgotten which fell within a period immediately after some morbid process, and the derangement of memory is not confined to any particular system of ideas. This type of amnesia differs from all others in being due to derangement of those physiological consequences of psycho-physical processes whose normal development is necessary to subsequent reproduction of these latter. Popular language would say that the power of receiving impressions is disorganised; psychiatrists speak of defective power of noticing things. Pathological cases show us clearly enough on what conditions this power of taking notice depends.

It is destroyed, in the first place, when the efficiency of *attention* is abnormally low, as may be seen to be the case in very different kinds of pathological conditions. Even in normal life the result of feeble attention is obvious enough. Direct experience itself remains obscure and indistinct, and consequently it is not easily recalled.

In the second place, impressionability is lessened if *the power of reproduction is abnormally weak at the time*. This may be seen best in cases of *stupor*. Attention may be concentrated with normal force upon an impression, and yet after quite a short interval the impression cannot be reproduced. That can only be due to weakness of the reproducing activity.

Here is a concrete case. A patient of mine with slight stupor could not answer questions except very slowly. She was constantly saying: "*I see everything, but I don't know anything.*" When asked to tell the names of things that were shown to her, such as a key, a hammer, a knife, and the like, she was found to take an abnormal time about doing so. It took her 5 minutes to tell the time when she was shown a clock, her procedure being like this—"The long hand is at X, the short hand at one minute

* *Op. cit.*, p. 74.

before XI—yes, but I can't tell at once . . ." and after 5 minutes in all she gave the right answer, "Five minutes to eleven." She computed with great difficulty and very slowly; for instance—

20 − 2	= 18	took about	5	seconds.
54 + 3	= 57	„ „	8	„
56 + 5	= 61	„ „	8	„
44 − 6	= 38	„ „	25	„
44 − 12	= 29	„ „	30	„
„	= 20	„ „	70	„
„	= 32	„ „	125	„
26 − 7	= 19	„ „	52	„

As always happens, she frequently misapprehended abstract conceptions. When asked the number of the seasons she began by saying "Twelve," and the question had to be repeated before she replied "Four." Evidently she misconceived the notion of seasons the first time and confused it with that of months.

She was well oriented in space, scarcely at all in time. She could give some account of her private history; thus she recalled certain events which had been contributing causes of her malady, events of vivid affective colouring. On the emotional side she was slightly depressed, evidently as the result of the inhibition.

The most striking feature in her case was the retardation of processes of reproduction. She had not lost her perceptive powers. As she said herself, she "saw everything," but she "did not know anything." There is, indeed, an apparent contradiction between this statement and the fact that she could name things she saw when requested to do so, although it took her some time. But the contradiction is merely apparent. For obviously the doctor's request aided reproduction of ideas that enabled her to cognise objects; it led to her concentrating her psycho-physical energy for a longer time and more keenly—that is, with more thorough-going inhibition of irrelevant ideas—than she would otherwise have done.

Orientation in space but not in time is characteristic of this derangement of reproduction. When we come to delusions of memory, we shall have to treat of localization in time with more detail.

Well then, we have here a case in which the power of perceiving is relatively sound, whilst those of reproducing and relating have suffered grave injury. Again, the power of concentration, of directing attention upon an object, is, as you will have noticed,

comparatively speaking sound: to compute correctly after all the time that this patient takes over a sum, without needing to have the question repeated, means a pretty lengthy fixation of ideas.

Now in this case and others like it we find impressionability much reduced, and it will be clear to you that this weakness must be connected with the decreased power of reproduction. *Present experiences are*, if I may say so, *not linked on to past experiences with normal ease*.

But there are other pathological cases which show that impressionability may be seriously impaired, even when there is not any pronounced weakness either of the power of concentrating attention on impressions or of the power of reproduction at the moment the impressions are received. Thus in the first stages of general paralysis there is not any distinct derangement of either of these powers, and yet there is often a striking incapacity to recall impressions subsequently, so that we have to assume that they did not imprint themselves deeply. Under these circumstances we are bound to infer the action of yet a third factor, and it must be *purely physiological* in character. Unfortunately, however, our knowledge of physiological cortical processes, here as in most other cases where they have no psychical correlates, is practically *nil*.

The last kind of partial amnesia that we have to discuss is the *systematic*, which, as I said, differs from the localized in affecting experiences of a definite nature, and not of a definite period. The first example I will quote comes from JANET.

It is the case of an hysterical patient on whom JANET had spent a great deal of time during several months. "On my greeting her one day as I passed," he tells us, "she looked surprised, did not answer, but walked over to the matron to speak to her in whispers. Naturally I asked the matron what was the matter with Célestine and what she had to say. 'Nothing,' she replied; 'there is nothing the matter with her, but she seems to be getting rather stupid. She was asking me who you are, and wondered that a student just arrived should know her and call her by her Christian name.' I attributed the remark to a spell of bad temper or a joke; but after having examined her, I understood. Célestine, the evening before, had had a rather serious crisis which, as often happens, upset her mental condition, and she had completely forgotten me. Her memory

regarding the events which had happened during her stay at the hospital was evidently very weak; yet she remembered every one else pretty well, but as for me, she seemed to have completely forgotten me and everything in which I played a part." For instance, she had forgotten her examination at CHARCOT'S hands, when JANET had been present.*

The various forms of hysterical paralysis also come under this heading, more particularly astasia-abasia, or hysterical inability to stand or walk, where the power of reproducing the necessary motor ideas is abolished. I will begin by quoting a case of BLOCQ'S.

"A boy, aged 14, son of a nervous mother, had to deliver an address to the bishop who was visiting his school. He had greatly excited himself about it, got headaches, and felt his legs growing weak. Next day he lay in bed unable to rise, though in bed he could move his legs with full force. Some months later he lost the power of walking and used to hop about the house like a magpie, first on one foot and then on the other. A fortnight after that he suddenly began to walk in the normal way again, but subsequently had a relapse, from which, however, he recovered in a month's time." †

Most writers are inclined to explain hysterical paralysis as the result of auto-suggestion. On this view we shall have to suppose that in BLOCQ'S case a sensation of weakness in the legs, resulting from extreme anxiety, aroused the idea in the boy that he could neither stand nor walk. I admit at once that such an idea, when possessing a strong emotional tone, may bring about a paralysis in hysterical persons; but I am bound to insist emphatically that to explain all such paralyses on these lines is out of the question.

To begin with, it cannot be denied that the patients themselves are ignorant of any mental origin for their trouble. "As far as the patient's consciousness is concerned," says MOEBIUS, "hysterical paralysis is absolutely on a par with any organic paralysis. He has equally little notion of the origin of both, and draws no distinction between them. Thus in the particular case of abasia, the connexion between his derangement and auto-suggestion is wholly transcendent as far as he is concerned; he sees that his legs will not carry him, and has no idea why.... It is only scientific investigation that discovers the connexion

* *L'état mental*, etc., p. 84; *The Mental State*, etc., p. 80.

† Quoted from MOEBIUS, *Über Astasie-Abasie.*

of the hysterical symptom with mental processes. By reasoning we discover the path that leads through the unconscious; to inner experience that path remains for ever inaccessible. Our conclusion is confirmed by hypnotic experiments, but there again amnesia hides the origin of the suggested alteration from the subject. The suggested idea does not become a constituent part of waking consciousness; it does not, like an imperative idea, serve as a motive to the will; but it is an efficient cause behind consciousness."

From the point of view of this auto-suggestion hypothesis the patient's ignorance of the mental origin of his paralysis may be explained either by supposing that the auto-suggestion itself is conscious but the paralysis is not apprehended as its effect, or by supposing that the auto-suggestion is also unconscious.

The latter seems the more usual view, but I consider it untenable. In the first place it is most unlikely that an idea which *ex hypothesi* has such strong inhibitive effects should be but obscurely conscious or not conscious at all; for the physiological processes of the cortex in which "unconscious ideas" consist—I am taking their existence as proven, for the moment—are supposed to differ from the physiological correlates of ideas proper just and only in *slighter* intensity.

Secondly, this view has to contend with methodological objections. In some cases paralysis is evidently due to an idea. Therefore, in cases where no such idea is to be found, an unconscious one is assumed. But even if "unconscious ideas" do exist, it is obviously a dubious proceeding to make use of them for explanation before every other possible interpretation of the facts has been carefully weighed and eliminated. What guarantee have we that hysterical paralysis invariably originates in one and the same way? Might not hysterical emotions produce it without being attached to an anticipatory idea? They certainly do so. We often find in hysterical persons that *fear of an idea makes reproduction of it impossible*, and it will prove quite possible to explain the occurrence of paralysis, without any co-operation on the part of "unconscious ideas," as the effect of an emotion such as we are bound to suppose is present. BREUER, for instance, tells of a patient who in recounting a part of her history could not reproduce one idea because "it had to do with a particularly horrible hallucination; she had seen her father, whom she was nursing, with a death's head."*

* *Op. cit.*, p. 29.

But this is opposed to what is the ordinary experience of normal and abnormal psychology alike, that an idea of vivid affective tone has the best chance of being forced into, and not out of, the fixation-point of consciousness; we shall see later that in cases of imperative ideas it is generally feelings connected with the insistent thought that keep forcing it to the front. Why do feelings all of a sudden have a different effect here?

The puzzle is solved if we look more narrowly at the concrete circumstances in hysteria. We must remember that reproduced affective states are abnormally intense in this disorder and abnormally easy to arouse, because of the unusual emotional instability which characterises it. Consequently they can be aroused in great intensity by ideas that are only just on the threshold of consciousness. Now we all know that a violent affective state, an emotion, tends to inhibit reproduction of ideas. (How it manages to do so is a question we shall clear up when we come to the pathology of feeling.) It is indeed true, as we shall find, that at first this inhibition only affects ideas which are not connected with the emotion, but as the emotion gathers strength it comes more and more to occupy consciousness to the exclusion of everything else, and inhibits even ideas that are closely related to it. So we can understand that *when an intense emotion is aroused by an idea which is still on the outskirts of consciousness, it may prevent the idea from becoming clear and distinct.* In reference to the questions we were discussing at the end of the last lecture, by the way, let me now point out that in this action of emotions we have an additional factor helping to drive certain ideas out of consciousness.

Well then, if reproduced affective states in hysterical persons can have this inhibitive effect, they will under certain circumstances be able to inhibit the reproduction of motor ideas of voluntary movements, such as the movements of standing and walking in the case I quoted. This will happen if the motor ideas have become intimately associated with intense affective states, as they have in cases of this kind. In the case I quoted an emotion of anxiety was closely associated with a sensation of growing weakness in the legs, and so the motor ideas mentioned, whilst still quite on the outskirts of consciousness, could arouse a reproduced affective state having an inhibitive effect.

It is much simpler to understand that when movements are intended which involve a progressive series of reproductions of motor ideas there may be inhibition of the *tendency* to reproduce

what would normally be the later members of the series. It is evident from what has been said how this comes about.

There only remains the interpretation of systematic amnesia in cases like JANET'S. I presume that much the same factors are operative there as in astasia-abasia; but cases of the kind have not as yet been accurately enough described to enable us to follow their history out in detail.

FIFTEENTH LECTURE

General Amnesia: Regression and restitution of memory—Are there unconscious links in reproduction? Causes and effects of dimly conscious ideas—Significance of states of Incoherence for normal psychology.

So far we have been speaking of the different species of partial amnesia, localized and systematic; we have still to deal with *general amnesia*, and the phenomena that will be most interesting for us to follow will be the gradual loss of memory and its gradual restoration.

RIBOT talks of a law of *regression of memory* *, to the effect that "the new perishes before the old." I should hesitate to speak of a "law," for so far as it is a fact it is due to "earlier events having been recalled more often than recent ones"; and further it would be a law with exceptions, since it is not invariably the case that in dissolution of memory earlier experiences remain longer. After all I have said about the conditions that determine reproduction of ideas, I need scarcely explain at length why these exceptions occur.

RIBOT contrasts with his law of regression a *law of restitution*, according to which recovery of memory follows precisely the reverse order †. He complains that our data on this point are very scanty, but a case recently reported by PICK helps to fill the gap ‡.

The patient in question is a woman who after confinement fell into an exhaustion-psychosis. She began with profound general amnesia, and a gradual restitution of memory followed. Her condition was noted as follows when the amnesia was at its height:—She is not oriented in space and time, and can only recount a few events of her past life, e.g. that she has been ill for some time, but she does not know how long. She is unaware that she was confined some months ago, nor does she know any-

* *Diseases of Memory*, p. 121. † *Ibid.*, pp. 123 ff.
‡ *Archiv für Psychiatrie*, Bd. 17.

thing of the last few years, nor can she tell her age. She possesses nothing but a few reminiscences of childhood, e.g. that her parents were day-labourers, that she went out to service in a farmer's house, went to school and learned reading, writing, and a little arithmetic. Set to do sums, she says that $7 \times 8 = 42$, $7 \times 6 = 42$, $7 \times 8 = ?$, $9 \times 5 = ?$. She complains of having lost her intellect. When the doctor examining her went away for ten minutes she thought on his return that she had spoken to him before, and on being asked when she replied that it could not have been long before or she would have forgotten.

As her memory was gradually restored she began by recalling events lying nearer to childhood before more recent events. Some little time after the examination just described she came to remember her marriage as well as her life as child and servant-girl, and later still she recalled her confinement. *So we have here a case of restitution of memory after general amnesia, and it does follow the order of the original experiences.*

Another interesting point about it, as PICK insists, is the light it throws upon one of the conditions determining localization of experiences in time. The report of the case shows that *the patient was influenced by reflection in assigning events to this or that time.* After ten minutes interval she said she had seen the doctor who was examining her "not long before, or she would have forgotten." *So her reflection is based upon the degree of vividness of her memory.*

That finishes what I had to say of the several forms of amnesia, and I propose now to inquire what attitude we ought to adopt, in view of the data afforded by mental pathology, towards *the hypothesis of "unconscious ideas," or* (to use a better mode of expression) *of unconscious and purely physiological links in the train of ideas.* Part of the material that bears on this question falls under the heading of amnesia.

In this connexion certain observations of hysterical persons made by BINET* and JANET deserve to be mentioned first. We have already made the acquaintance of one of JANET's patients, who in consequence of a seizure developed anterograde amnesia as well as retrograde amnesia for a period of six weeks. Now JANET says that under certain conditions the events of the condition in which her impressionability was deranged "were unconsciously reproduced." "If I question the patient in a

* *Les alterations de la personnalité.*

direct manner," he writes, "if I ask her to pronounce or even to write voluntarily the name of the house-physician who takes care of her, I observe that she appears to make an effort, but declares herself incapable of writing the name. I have now to proceed in another way. I step away from her and ask some one else to talk to her; she replies to this person's questions, seems to pay attention to what is said to her, and does not mind me any longer. I slip a pencil into her right hand and she takes it without turning round; that is odd, but it happens so with most hystericals, whose minds, as we have seen, are easy to distract. Let us take advantage of this disposition, and, while Mme. D. continues talking with some one else, let us make her a suggestion as if she were able to understand us: 'Write down,' we say to her, 'the name of the doctor of your ward.' We see that hand which holds the pencil begin to move and write, 'M. Lamy.' In the same way we ask her what is the matter with her left hand, and she writes without hesitation, 'I cut myself with glass.' In a word she will answer in this way all possible questions, and her writing thus obtained will show us the reproduction of all the remembrances which she seemed to have completely lost. . . . I have succeeded in manifesting these remembrances in another way, namely by word of mouth. But this patient, it will be said, never succeeds in telling them: no suggestion has as yet been able to make her express them. No doubt. We shall, however, have recourse to a method which sometimes succeeds. I am going to distract her mind once more, but this time I avoid drawing her attention to speech. I give her a book to read, or, still better, a multiplication sum to do. While she is well absorbed in her work, we notice the same phenomena of mental distraction; we can touch her, whisper to her, without her turning round. I say to her, 'What are the names of the two patients, your neighbours in the ward?' Her lips move, and she replies in a low voice, 'Mme. C. and Mme. P.' I might even command her to speak louder. If she is well distracted by her reading or multiplication, she will repeat the names quite loud and correctly. A new fact again, from which we draw but one conclusion still: the reproduction of remembrances does occur in her; it seems to take place normally when needed." *

Observations like these lead JANET to the following conclusion: "For a sensation to be appreciated by the subject, it is not

* *L'état mental*, etc., pp. 104 ff. *The Mental State*, etc., pp. 99–101.

enough that it should be produced in the mind single and isolated. It is necessary for the complete consciousness of a sensation, a sensation that can express itself by 'I feel,' that a new operation should be added to the first. It is necessary that a sort of synthesis should gather together the sensations produced and connect them with the mass of anterior ideas which constitutes the personality. It must be the same with images. It is not sufficient, in order to have consciousness of a remembrance, that such or such image be reproduced by the automatic play of the association of ideas; *personal perception* must also seize upon the image and connect it with the other remembrances, with the sensations clear or confused, exterior or interior, the entirety of which constitutes personality. Call this operation what you will—give it the name *personification*, or be satisfied with the common terms we have always employed, personal perception of remembrances or psychological assimilation of images—we must still insist on its existence and make a place for it in the psychology of memory, as well as in that of sensations.

"This operation is with us so simple and easy that we do not even suspect the part it plays. But it may be altered and suppressed, while the other phenomena of remembrance, conservation and reproduction of images, persist in their integrity. Its absence will be enough to produce in patients a disturbance of memory which will be, *for them*, a real amnesia."*

BINET takes a similar view. The conclusion drawn from the observations is, you see, that no contents of consciousness become "completely" conscious or admit of "completely" conscious reproduction unless they have been synthesised with consciousness of self. But this is contradicted by the simple psychical fact that just when we are engaged in mental work involving most effort, consciousness of self recedes, and no synthesis with it takes place. Yet no one would maintain that in such a case the contents of consciousness are incompletely conscious, either at the time or when reproduced. There are other writers who think that the hypothesis of reproductions unconsciously effected —that is, without any psychical correlates of the physiological processes involved—is the only way of explaining such phenomena as are reported by JANET or BINET.

But it seems to me that the observations themselves require further confirmation. JANET admits that the phenomena occur irregularly, and so does BINET. Yet even if we assume that the

* *L'état mental*, etc., p. 108. *The Mental State*, etc., p. 103.

facts are certain, a different interpretation seems to me more obvious.

Mme. D. has anterograde amnesia for impressions received during the period after her seizure because she neglects to notice them, as, for instance, she had not noticed hearing the names of her neighbours in the ward. It is in a state of distraction that she receives the impressions. Now a state of distraction proves most favourable to their reproduction; except in such a state she cannot reproduce them at all. One is led to conjecture that the facilitation of reproduction in the distracted state must be due to the general condition of consciousness being then identical with what it was when the impressions were originally received. Even in normal mental life concentration of attention is often found to exercise an inhibitive influence upon reproduction. Accepting such an hypothetical interpretation of the somewhat hypothetical data we have no need to assume unconscious reproductions either in JANET'S sense of ideas not entering into self-consciousness or in the more ordinary sense that I explained.

There are, however, other orders of facts which appear to support the doctrine of unconscious links. Mme. D., as you remember, suffered not only from anterograde, but also from retrograde amnesia covering a period of several weeks, which included the bite by a mad dog. Now in spite of her inability to recall this experience after her seizure, she fell into a state of awful terror whenever she saw a dog, though she had formerly been fond of dogs. Facts of this kind are usually explained by unconscious reproduction of ideas. Reproduction must really take place, it is argued, or the sight of a dog would not constantly occasion fear; but it must be unconscious, or else the patient would be more or less aware of it.

Such cases do not seem to me in any way cogent proofs of the hypothesis. In hysterical persons, as I have pointed out, a percept or idea need only appear on the outskirts of consciousness and it will arouse any strong affective state with which it may have been connected in the past. That being so, we need not be surprised that when Mme. D. sees a dog the idea of the mad dog does not occur separately from the present perception.

Further evidence of unconscious links in the causal series of psycho-physical processes is found in experiments of a kind first started by BINET and FÉRÉ *, and subsequently developed

* *Magnétisme animal.*

by JANET *, ONANOFF †, and RANSCHBURG and HAJOS ‡. JANET suggested to anæsthetic hysterical subjects in the hypnotic state (the use of hypnosis being to make the association more intimate), "You will raise your left arm when I pinch the right one"—"Every time I touch your right arm you will see a flower in front of you," and the like; and afterwards, in the waking state, pinching the anæsthetic arm did result in a movement of the other or in an hallucination of a flower, although there was no sensation of the touch or pinch.

In these experiments, it might be argued, it is out of the question that movement or hallucination should have been occasioned by a dim, unnoticed sensation; the sensation must be "unconscious." Did a psychical act accompany the touch on the anæsthetic arm, it could not have remained unnoticed, attention being directed to the touch. There being no clearly conscious sensation of contact, neither was there an unnoticed one, and so it must have been a purely physiological process that reproduced the idea of moving the other arm or the idea which resulted in an hallucination.

Well, I do not think we are bound to admit that attention was so set as to put unnoticed sensations out of the question. Had it been so, a representation of the expected sensation must have been fixed in consciousness, but it cannot be proved that such fixation took place, and indeed the opposite can be shown to be very probable. We have to remember that the hysterical find it abnormally difficult to direct attention upon stimuli that affect anæsthetic areas, and suggestions such as JANET made do nothing to counteract this difficulty. ONANOFF ascertained that when attention is turned directly upon such stimuli by suggestion, real sensations are aroused.

So these experiments are far from proving the occurrence of unconscious links in reproduction; indeed, the fact that memory of the alleged "unconscious sensations" can be revived in subsequent states of hypnosis § seems to be a direct argument against that hypothesis. If the central process occasioned by the touch on the arm had been of such slight intensity as to have no psychical correlate, then it is very remarkable, I think, that it should have physiological after-effects of such intensity as to render memory of the "unconscious sensation" possible.

* *L'automatisme psychologique.*

† *Über die unbewussten Wahrnehmungen* (*Arch. de Neurologie*, 1890).

‡ *Neue Beiträge zur Psychologie des hysterischen Geisteszustandes*

§ *L'état mental*, etc., p. 42.

Allow me finally to trespass for a moment upon the domain of hypnotism in order to discuss a hypnotic fact which seems to tell in favour of unconscious links. I will cite an observation recorded by O. VOGT*, together with his interpretation of it.

"I have fairly often sent one of my subjects to sleep," he writes, "by means of suggestion. I always began by placing my hand on his forehead, and then gave him detailed suggestions of sleep. I used to excite terminal ideas of a sensation of warmth growing under my hand, of heaviness in his eyes, of general weariness, and of all the other psychical concomitants of falling asleep. In the end they were always realized, and he fell asleep more quickly each time, till to-day he does so the moment I lay my hand on his forehead. When reawakened he declares that he no longer thinks of sleep now as he falls asleep, and when the condition of narrowed consciousness is again induced he still declares that he did not have any representations of sleep before going to sleep. What was the mechanism of falling asleep in his case? Although it all happened so quickly, the stimulation caused by my laying my hand on his forehead excited the physiological processes which are parallel to the terminal ideas of falling asleep. But owing to habituation they led straight to sleep without attaining the degree of intensity necessary to their becoming conscious. Thus it was an unconscious auto-suggestion that caused sleep; even if the intensity had been stronger it would have remained weak in feeling."

By "terminal idea" VOGT means a "representation of the entry of a psycho-physical process," as of the sensations of warmth, heaviness in the eyes, or general weariness above-mentioned, and you must distinguish between these ideal representations and the actual sensations. Frequent repetition of hypnosis seems to lead to their disappearance, although the effect remains the same as in the first of the series of hypnotic states, when it was certainly due to them. But I cannot agree with VOGT'S interpretation of the matter. The ideas are identical in content with the subsequent sensations, and as the transition from idea to sensation grows more and more facile, there is everything to favour their fusion, so it seems to me; at any rate, we cannot be surprised that they no longer remain distinct.

The pathological facts I have cited constitute, I believe, the data which seem to tell most strongly in favour of the hypothesis of unconscious links of reproduction. I have shown you that

* *Die Zielvorstellungen der Suggestion* (*Zeitschrift f. Hypnotismus*, 1897).

they do not force us to adopt it. So I assume that there are present in these cases dimly conscious ideas and sensations. by which phrase I mean that the ideas or sensations are so obscure and indistinct that the subject cannot give any account of their quality. Now you might perhaps argue that though the facts do not *force* the other hypothesis upon us, we have just as much right to assume unconscious phenomena in explanation as to assume dimly conscious ideas ; there is no direct proof that the latter either are members of the causal series of psychophysical processes. To that I reply that though no doubt they cannot be pointed out, yet it is better to assume such and such dim ideas and not such and such unconscious phenomena, because there is no doubt that phenomena of the former kind do *sometimes* occur, whereas it remains to be proved that the latter ever do. No one can deny that there sometimes occur in our minds ideas which do not depend on any clear and distinct contents of consciousness, and at the same time we feel that there is something else there, though we cannot tell what ; and now and then this something else afterwards becomes clear and distinct, and confirms our conjecture that it had led to the reproduction of those ideas.

On the other hand there is not a single fact of normal mental life to make us believe that unconscious phenomena can have this reproductive action. People are too apt to raise the question of the reality of unconscious phenomena in the abstract, instead of asking whether they are real factors of a particular result.

For these reasons, then, the hypothesis of dimly conscious psychical states is preferable to that of unconscious links in cases like those we have been discussing, unless and until facts can be indicated which force us to adopt the other view.

In my opinion, however, we may go a step further. You remember that in hysteria ideas may be repressed and yet continue to exercise an abnormal influence upon consciousness. Now surely if " unconscious links " ever occur at all, it is here they should be most easy to detect. If their presence cannot be established even in these hysterical cases, we may be pretty certain that they do not exist at all.

As we have been led to speak of dimly conscious ideas, this will be a convenient opportunity of ascertaining what dimness depends upon ; and we may inquire at the same time whether anything can be discovered about the conditions under which dim ideas produce effects in clear consciousness.

Running through the different kinds of cases—I need not name them again individually—we find that ideas remain dim, firstly *if they fuse with other psychical magnitudes* and so are not fully separate in consciousness, and secondly if they stick *on the extreme edge of the field of consciousness*, as may happen, we saw, if they are connected with affective-conative states which are easily aroused and by which they are then inhibited. Sometimes these two factors co-operate.

Again, if we review the psychical processes which we found to be evoked by dim ideas and notice the character of the connexion in each case, we see that *very frequently it was by arousing affective states that these dimly conscious ideas produced an effect in clear consciousness*. This was due in part to the abnormal ease with which those states of feeling could be revived; but partly also to the fact that reproduced affective states have energy-values of a different order from reproduced sensations (ideas), inasmuch as they include among their constituents actual sensations, viz. organic sensations, and so can assert themselves in consciousness far more readily than the corresponding ideas. This last statement of mine is not indeed proved by our cases, but is an answer from normal psychology to a question they raise.

But dim phenomena affect clear consciousness *through ideas* as well as through feelings. BINET and JANET have pointed out that movements of the anæsthetic limbs of hysterical persons may, despite the abrogation of tactual and motor sensibility, arouse visual representations which inform them of the position of their limbs; and RANSCHBURG and HAJOS report that if an anæsthetic area be touched, a visual representation of the spot touched may ensue. More precise information is still needed as to the exact conditions under which these visual ideas are present or absent. In some of RANSCHBURG and HAJOS' patients they occurred when the suggestion had been made to the patients that they would have such and such a visual hallucination when an anæsthetic area was touched, and under those circumstances I think we may take it that the irritability of the visual region was heightened, and therefore the revival of visual images facilitated, and that this was a part cause of the result.

So far as our data go, then, they lead us to conclude that *when the effect of dim ideas upon clear consciousness is revival of clear ideas, two factors are operative: firstly, intimate association of the ideas, and, secondly, facilitated revival of the clear ideas owing*

to other causes than association. Among these causes must be reckoned, not only increased irritability of sensory areas of the cortex, but also the conscious complex of the moment, and frequent recurrence of the particular ideas themselves in the past.

The last abnormality of the train of ideas that need be considered for our purpose consists in certain *states of mental confusion* or *incoherence of thought* *, when the inner connexion of the train of ideas is deranged.

Incoherence may be due to various causes. Sometimes it results from frequent hallucinations, as is easy to understand. In other cases it depends upon morbidly intense emotions. We shall see the reason for that when we come to deal with the pathology of affective states: as a rule it is emotionally conditioned when it comes on in consequence of insane delusions. However, it would be off the point to enumerate all the different causes of incoherence; I will merely refer you to KRAEPELIN † and to ZIEHEN ‡. We need only look at cases in which it results from abnormal weakness of attention and reproduction, for they will teach us the effect that attention has upon the train of ideas and also what kinds of reproduction are most easily accomplished.

In cases of slight confusion weakness of attention results in inability to stick to the point, as people say. The patient keeps suddenly digressing and jumping from one thing to another. Yet each separate sentence may be perfectly regular. This characteristic is due to incapacity to make a single idea or system of ideas—a single topic, one might say—the leading thought of an entire train of ideas. Psychiatrists talk of absence or ineffectiveness of a terminal idea §; if one occurs, it is not properly fixed.

It is easy to see that this condition is abnormal, and so we are brought to notice that in normal mental life *leading thoughts* dominate the train of ideas. But how? We use this same term, insufficient fixation, when a thought that might have become a leading topic, had the patient's power of attention been normal, is directly connected with one point only of the series of subsequent reproductions, and does not determine the character of the series beyond that point. Thus there is not a leading thought,

* *Verwirrtheit, Incohärenz.—Tr.* † *Psychiatrie*, 6th ed. Vol. I.

‡ *Psychiatrie*; and *Über Störungen des Vorstellungsverlaufs bei Paranoia* (*Archiv f. Psychiatrie*, Bd. 24).

§ KRAEPELIN, *op. cit.*, p. 146.

properly speaking, *unless every single member of the series of ideas that succeed it depends directly upon it.*

We may supplement this by a statement borrowed from normal psychology. Not only is the train of reproductions determined by the leading thought in a special manner; *there is a selection made from among the ideas reproduced,* those ideas or systems which are not related in a determinate way to the leading thought remaining unemphasised in consciousness, since attention is diverted from them.

When there is a medium degree of incoherence, weakness of attention results in *external impressions gaining abnormal influence over the train of ideas.* Here is a concrete example.

The patient talks indefatigably, and is for ever on the move. " She talks incessantly in broken sentences, with no connexion in what she says, first addressing one person and then another, then nodding or gesticulating to a third. A pressing question sometimes gets an appropriate answer, but in a moment she has strayed off again. An instance or two: 'Lupus incarnus infabula. Thou hast diamonds and pearls and that is God's hill. There is the gilliflower, and the old woman gives greeting. The hill of the earth, that is the whole raree-show. Adam and Eve. And the father of sin has been a blockhead—and uncle and Ida check-mated.' Pointing at an attendant's badge and coat-collar—brass stars—'That man with the stars has been shovelling snow the whole day.' (Somebody speaks aloud.) 'Any one that makes such a row is a glandered horse, a beast.' (Pointing at a patient's glasses.) 'I do not need *pince-nez;* that means six weeks in gaol.' (She is given a sausage sandwich.) 'I am Purveyor of Jewish sausages to the Court.' (She gazes at the doctor's beard and grabs his chin.) 'I have a fine beard, am going to have it off, my goatee beard—are you a spiritist? I think you must be, for I have a sharp eye.' (Somebody sneezes.) 'I haven't a cold. When it rains, drops fall.' ('How long have you been here?') 'One day—when you see the telegraph and a lamp, it's the electric light.' ('Why are you here in hospital?') 'Because I turn everything topsy-turvy—except that, there's no error in my fair copy.' ('Have you any brothers or sisters?') 'Yes, five—Auguste, Adam, Eve, that's all. Otto is young—the reformer of the world.'" (HAHN.)

In extreme cases of incoherence it is not often possible to indicate any association between the different ideas reproduced. A patient of mine, for example, replied to the question, " How

old are you, Mrs. L. ?" "I was this very day, I have been fifteen. So I said at once, my husband's name is Buchholtz. On the track everything was so nice, every dunderhead gone, that don't honour the parson. It said God had protected you too." "How are you ?" "I've just given all the straw not store from my mummy. Then I said, it has been the green parsley, as the yolk would eat the light again. So I said at once, you are Mr. Devit. . . ." All this at a great rate.

Some writers suppose that in cases like this, where strings of ideas seem to be reproduced which are not likely to have been associated together in the past, the continuity of the series is only superficial; the ideas as actually reproduced are associated, but many of them are not uttered. But in many cases this is very doubtful, and so others, like ZIEHEN, prefer the assumption that the ordinary laws of reproduction are in abeyance.

The introduction of new laws seems to me quite inadmissible. We ought to have no difficulty in explaining the phenomenon if we start from the obvious fact that attention is extraordinarily feeble in these patients. Normally attention emphasises certain special contents of consciousness more than all the rest that are present at any moment, and by so doing it strengthens their tendency to reproduce other ideas. Here it is too feeble to do so, and thus the ordinary distinction between *causæ* and *concausæ* of reproduction disappears, and what is reproduced depends far less than under normal circumstances upon the reproductive tendency of any single idea.

Not only is attention deranged in profound mental confusion, but *the power of reproducing ideas is weakened;* and this of itself must enfeeble attention, as we shall see in a later lecture.

I will cite a couple of cases from ZIEHEN. A female patient of his with primary incoherence talks like this :—

"Wissen was dies wollen werden—spitzige Zungen werden heute Gevatter mir—ihr gefangenes Ohr—das sind die Grenzeswächter—lieben trauten mir—endlich ist die Traube mir—lassen sie mich lieber hier—und das ist die Liebe—und das ist das liebe Pflaster nur . . . trugen klugen mir—hier wollen wollen zeigen sie Bier." *

And another one with primary incoherence in acute mania :—

"Da weiss ich doch, was weiss und weiss und schwarz und weiss—und wer die hat hierher gehört—das ist nicht mein Staar

* *Über Störungen*, etc., p. 381.

hier a—das ist nur ein Staar hier—Haufen—Paar, Staar—Turteltaube, Turtelpaar—Märchen war—Härchen—Öhrchen." *

You will notice that reproduction here depends mainly on verbal association, especially on similarity of sound, and that there is a marked tendency to rhythm. These symptoms, I venture to say, are always present in profound incoherence, even when there is not hyperæsthesia of the motor region; and, if that is so, it follows (1) that *reproductions are most easily affected by verbal association;* (2) that *similar ideas are reproduced more easily than contiguous ideas;* and (3) that *rhythmical accentuation of utterances is apt to accompany weakness of the power of reproduction.*

In discussing aphasia we learned that rhythmical accentuation may assist reproduction, and rhythmical movements may also be observed in idiots of the lowest level. The preponderance of verbal associations does not require special explanation. As to the superior facility of reproducing similars, do not say that it is inconsistent with the fact that to apprehend similarity is an act of more developed consciousness; apprehension of similarity is not necessarily involved in reproduction of similars, and there is no question of it here.

* *Über Störungen*, etc., p. 128.

SIXTEENTH LECTURE

Errors of Memory and Recognition.

I PASS on to-day to *errors of memory and recognition.* It will be as well to begin with a definition of memory, leaving that of recognition till we have finished speaking of errors of memory, since I shall have to sketch the different kinds of recognition in order to make clear to you the connexion between it and memory.

I call it *memory* when a reproduced idea is accompanied by the conviction that its content has been a direct experience of mine in the past.

We have to distinguish various kinds of errors of memory. In the first that I shall mention *past ideas of experiences are mistaken for actual experiences*, or, in popular language, past imaginations are confused with past events. Let me introduce my exposition of this deception by a review of a concrete case of GANSER'S *.

" The patient is a boy, 14 years of age, intellectual capacity good, temperament merry and kindly. For the last year he has had constant headaches and oppressive dreams, finds it more difficult to learn, is easily fatigued, grows more and more forgetful and distracted. Since about three weeks ago he has been in a slightly maniacal mood, with meaningless gaiety and great excitability. A sudden attack of frenzy with destructive impulses and inclination to violence, as well as complete amnesia, led to his internment in the Munich District Asylum." Here are extracts from the report which give the points of chief interest to us. " Once he lay down on the ground in front of the partition-door and refused to get up because, he said, the doctor had ordered him to lie there and block the passage; ' there was plague in the house.' Afterwards he had violent headaches. A few days later he was found speechifying and gesticulating wildly one evening, and declared he had just been

* From KRAEPELIN'S *Psychiatrie.*

asked to join the board of directors of a company for cultivating Africa, and more particularly for boring wells and trading in the Sahara; the company's bill was at that moment before Parliament in London. He knew people about him, but insisted all the same that he was at the Hotel Bavaria in Vienna, had been in London a few hours before, and had just come across by balloon. He did not know the time of day. Next morning his memory of what had happened was fragmentary, but he stuck to his delusions, still believing he was in Vienna, and had been invited to join the board by strangers whom he did not know. He was aware that he had been in the Munich Asylum. It was only gradually that argument seemed to convince him of the falsity of his fantastic notions, and then he stated that they were *borrowed from a story he had read a few days before*, as proved to be the case."

You see, he could not distinguish memory of what he had imagined when reading from memory of what he had actually been through, but took recollected thoughts for recollections of direct experiences. A sane person can distinguish the two under ordinary circumstances, though the degree of acuity with which he does so varies. It varies, first, for impressions received at different periods of his life, being higher for the recent than for the remote past. But it varies also for different contents of consciousness belonging to the same period. Suppose that, intending to write a short note to somebody, I determine on its wording in thought, I may very well be uncertain afterwards, and not very long afterwards, whether I really wrote it or only intended to do so, whilst I may be quite free from error about other things I intended at the same time, not having pictured to myself so concretely how I meant to do them.

Thus the distinction of actual from imaginary experiences becomes more difficult with *the lapse of time and the concreteness of the imagination*. But that is not all. To suppose that something we have only thought of has really happened to us often contradicts the rest of our experience, and then it is by an *inference* that we are certain it was all imagination. Our certainty in this matter seems to be immediate, as a rule, but it is not really immediate, even when an inference of this kind is absent; for then it is based, as we see, upon certain characters of the ideas reproduced—I mean of the ideas themselves as conscious processes, not of the objects intended by them—which are appreciated as marks of subjectivity.

Such is the answer that normal psychology gives to a question presented by abnormal cases. But in the case I quoted last the patient has lost the power of appreciating those characters of his ideas, even in reference to very recent occurrences; his consciousness is much dimmed.

A second kind of error of memory consists in *wrong localization in time of past perceptual or ideal experiences.*

First of all let me give you a case or two to show how memory of the temporal relations of past experiences stands in reference to memory of the experiences themselves. KORSAKOW * reports such cases; here is one of them.

It is a case of puerperal psychosis with multiple neuritis. The patient was aware of her situation; she answered questions pretty distinctly. But there were striking defects in her memory; although she could remember the greater part of what happened around her, she could not recall anything unaided, but had almost always to be guided to do so. Sometimes she would begin by denying that she had the least recollection of an event, and then all of a sudden it would recur to her down to the minutest details. She noticed visual impressions best, particularly physiognomies, *and temporal relations worst.* For the rest it was only as regards recent events that her memory was deranged; she was quite clear about all that took place some time before her illness, but knew very little about what had happened immediately before and during it.

As regards time the derangement of memory was still more pronounced in another of KORSAKOW'S patients, *who could sometimes recall quite distinctly what had happened in her presence, but not when it happened.* If she was asked, for instance, whether a certain event had occurred the day before or three years ago, she could not say.†

You see, then, memory of the temporal relations of past experiences is abolished in these cases, though for all other aspects of the several experiences it is not abolished, but merely weak.

In another set of cases events are wrongly localized in time. OETIKER ‡ describes a patient whose mind is clear except for this defect of memory; but he writes letters—quite sensible

* *Archiv f. Psychiatrie*, Bd. 21. † *Loc. cit.* p. 671.

‡ *Kasuistische Beiträge zur Kenntnis der Erinnerungsfälschungen* (*Allg. Zeitschrift f Psychiatrie*, Bd. 53)

letters—under the belief that his wife and his mother (both of them long dead) are still living. Thus he wrote a letter to his mother, describing in well-chosen terms the painful nature of his situation there in an asylum *. His judgment is intact, his general power of reproducing ideas very weak.

In a case reported by RANSOHOFF † memory had been so far restored that the patient could give a fair account of his personal history and of the dates of more remote events, computing them rapidly and accurately, and yet he believed that it was several months since he had seen a certain official to whom he happened to speak, when as a matter of fact they had met only a day or two before. (The patient had then been over a year in the asylum.) Shortly before this he had recognised another person who was in his section of the building for a few days two and a half months previously, and supposed him to have been there all the time. TILING also discusses this form of derangement ‡.

The principal features of such cases for our purpose are (1) that *memory of the temporal relations of past events is abolished sooner than memory of the events themselves, and, even when not completely lost, becomes vague sooner, thereby occasioning errors*; and (2) that when such errors do occur, memory of the several events themselves is also very defective, being confined to sporadic links of the continuous series of past experiences. *So it seems as if the derangement of memory for temporal relations were due here to diminished power of reproducing the past in a coherent series of ideas.*

A further kind of memory-error that deserves mention consists in *supplementing past perceptual or ideal experience by constructions of fancy, which are supposed to have formed part of the original experience.* A case of KRAEPELIN'S § will serve as an illustration.

The patient suffered from chronic paranoia with ideas of grandeur. "The week before his admission he had read in the newspapers, so he said, that the king had been deposed and the queen-mother imprisoned: he was the true claimant of the crown and would ascend the throne after a year. Oddly enough, in spite of his clear recollection of having read these passages in the papers—he told us the page they were on and knew them practically by heart—he was never able to find them again, and

* *Kasuistische Beiträge zur Kenntnis der Erinnerungsfälschungen* (*Allg. Zeitschrift f. Psychiatrie*, Bd. 53, p. 21 ff.

† *Über Erinnerungstäuschungen bei Alkoholparalyse* (*ib.*, Bd. 53).

‡ *Ib.*, Bd. 46 and 48. § *Über Erinnerungsfälschungen.*

so he came to think that the editions in question had been withdrawn and others substituted. Closer questioning elicited that the news had not struck him particularly when he read it; it was not till some time had elapsed, several days later, that the idea of its referring to him came into his mind; but then all that he had read presented itself again perfectly clear and distinct."

The following point is interesting. "When first under observation nothing would induce him to undertake any serious occupation. He liked best to walk to and fro, brooding. He was musing on his past: 'all he had heard and gone through was so intricate and complicated, it was a marvel he hadn't gone crazy.' 'When I once begin to set things in order in my mind, one leads on to another, it is a veritable battle of Huns in my mind.'"

A case of DELBRÜCK'S *, more fully described by OETIKER †, is of the same kind. The patient had ideas of injury. A quiet conversation over a glass of beer led two days later to an affair which he recounted as follows:—

"I was sitting at a round table talking to a member of the W. male choir, when all at once he asked me, Didn't I smell anything? Hadn't I noticed that D., the landlord, had inoculated me. I turned round and there I saw D. just pouring drops of some filthy-smelling liquid out of a vial on to a handkerchief. I suppose it was sal volatile. Not wanting to make a fuss I simply told him to stop his dirty tricks, and went on talking to my neighbour. But D. found the dose wasn't enough, and repeated it, whereupon I got up to leave the place. Unfortunately I was too paralysed by then and couldn't walk. My companion, who meanwhile was rowing the landlord for treating me like that, tried to help me out; but it was no good, for W., the locksmith, ordered another 'volley' and 'halt.' Then the sorcery was repeated, to the delight of the company, who were naturally much surprised that the locksmith could fetter and move a man's will by a dose of sal volatile. On the word 'Free!' I got my strength back and was able to move off. Amid jeers and laughter I left the place with my companion, who went home with me to O.-alley, where we both lived.

"The Tuesday after I recollected what had happened, and went at once to my friend to get his evidence. But I was deceived in thinking him straightforward; he admitted having been in

* *Die pathologische Lüge und die psychisch abnormen Schwindler*, p. 50.
† *Loc. cit.*

It certainly was not so with my patient. Often, too, the fancies which are mistaken for recollections are in obvious contradiction to actual facts that are also remembered.

In these cases, then, products of fancy are interpolated among quite recent events. This is due to dementia, and never happens except in dementia, and the power of reproduction may be sound all the time.

Well, then, we have convinced ourselves that the phenomena of memory are not identical with complex reproductions, but involve an act of judgment as well. Can we go a step farther and discover anything of the factors behind this act of judgment? Can we ascertain on what basis the judgment rests that "this is a past experience of mine"? For an idea of fancy arising out of some past experience to attain memory-value, when the subject is a person of sound judgment, there must, as we saw, be an intimate connexion between it and the memory-idea of that experience. Are we not bound to assume, then, that there is a very intimate associational connexion between the partial ideas which go to make up the aggregate memory-idea, its intimacy consisting, probably, not so much in any special strength of the different integrations individually—for they are often due to nothing more than a single co-existence of two ideas in consciousness—as in the number of connexions between the idea of a previous state of the self and the other partial ideas and between these other partial ideas themselves? If now such a complex memory-idea becomes attached to an idea of fancy, whether or not that happens through association, anyhow an association between the latter and a single constituent of the former will be enough to bring about reproduction; it is at most very rarely that an idea of fancy is associated with all the separate partial ideas. These associations, of which, as I say, the most important are probably those between the given idea of a prior state of the self and the other partial ideas, result in the aggregate memory-idea forcing itself to the front; in other words, the complex memory-idea develops, and its several constituents, so far as their content is concerned, prove independent of our will. *And just on this seems to me to be based our belief that "this is a past experience of ours"—on our being aware that such and such ideas are so connected with an idea of a previous state of ourselves and with one another as to present themselves, so far as concerns their content, independently of our will.* If the number of partial ideas is very considerable, the associations between them result

in the memory-idea presenting itself as a whole, out of which they severally rise into prominence, again independently of our will.

In certain cases, however, as is evident from observation alike of abnormal and of normal persons, ***unusual clearness and distinctness of an idea of memory may also lead to the judgment that " this is a past experience of mine."***

If there is added to the belief that " I have experienced this before " the further belief that " such and such parts of my previous experience are identical with what I now perceive," then we have *Recognition*. But recognition does not always involve an act of memory. I may feel sure of having previously perceived what I am now perceiving without being able to recall the previous perception. My conviction may be due to more than one cause. It may be that in consequence of a previous, though forgotten, perception of the object my present perception, incomplete at first, revives ideas which on more complete perception are afterwards found to be identical with features of the object originally unnoticed. The probable inference that " I have seen this before " rests here on the coincidence of revived ideas with the details of the percept when completed. ALFRED LEHMANN gives an admirable illustration of this kind of recognition. Suppose a man is walking in a district where to the best of his belief he never was before, it may happen that all his surroundings suddenly strike him as familiar. " It seems to me I have seen that house before, and the hill over there. Down below the road takes a bend. Surely there is a bridge at the bottom over a little brook." * He walks on and finds the bridge, and then is certain that he has been there before after all. In a case like this, you see, a probable inference is involved.

But recognition without memory does not always depend on an inference like this. My belief that I have had a certain perception before may be based upon the presence of a peculiar psychical phenomenon attending the perception, called by HÖFFDING † " familiarity-quality," and by WUNDT " recognition-feeling." Our next question must be how it arises.

The characters of the kind of recognition I have just been describing guide us to a possible answer. May it not be that as a result of frequent repetition the identity-feelings aroused in

* *Über das Wiedererkennen* (*Philosophische Studien*, Bd. 5 and 7).

† *Vierteljahrsschrift f. wiss. Philosophie*, Bd. 13 and 14; and *Philos. Studien*, Bd. 8.

the course of the process of recognition obtrude the thought that this is something I have perceived before, without my making an inference? If that is so, the identity-feelings will constitute the "familiarity-quality."

But this hypothetical explanation is certainly out of the question when the familiarity-quality attaches to a simple psychical content. What can its origin be then? HÖFFDING, as you all know, replies that it is due to association "by similarity," whilst LEHMANN, in his controversy with HÖFFDING, takes contiguity to be its basis; and each extends his own theory so as to cover cases where the psychical contents are complex. I think that certain pathological cases furnish valuable data for the solution of this question.

On HÖFFDING'S view we should expect to find the familiarity-quality present in all *illusions*. But it certainly is not always present, and that seems to me irreconcilable with HÖFFDING'S hypothesis. Besides, there is a kind of erroneous recognition which also tells against HÖFFDING.

This *error of recognition*, which has always been wrongly treated as an error of memory, is not confined to abnormal minds, but is found in normal mental life as well. No doubt you have all come across it. You are in a situation demonstrably strange to you, and yet you feel as if it were familiar. I can recall many instances when I have had this impression among absolutely new surroundings. When it is a matter of a sequence of events, the conviction that it is all familiar is often combined with a presentiment that one knows what is coming next and how the situation will change; and when it does change one feels convinced that this is just what one expected. The whole process is said to be accompanied by a painful feeling of expectation.

In some such terms it has been described by a great number of writers from their own experience; for instance, by JENSEN *, W. SANDER †, EMMINGHAUS ‡, and KRAEPELIN §. Some of them insist that the impression disappears if attention is concentrated on the actual situation. In my own case the matter has always stopped short with the conviction that the situation is familiar; I have never had the presentiment, or the conviction of its fulfilment, as the situation changes, or the painful feeling of expectation; but obviously this difference is due simply to the short duration of the deception in my case.

* *Allg. Zeitschrift f. Psychiatrie*, Bd. 25; *Archiv f. Psychiatrie*, Bd. 4.
† *Archiv f. Psychiatrie*, Bd. 4. ‡ *Op. cit.* § *Archiv f. Psychiatrie*, Bd. 17 and 18.

In normal minds the phenomenon is commonest during youth, or in adults when they are in a condition of lassitude. In abnormal mental life it has been observed almost solely in epileptics. Hear what a patient says. " After talking to any one, or seeing anything, I feel as if it had all happened before. ' You have seen that before,' I say to myself, ' you have heard that before, you have been through it all before.' So I got frightened and didn't dare to speak, because I thought it had all been so before. But now I have thought it over, that it can't be so, and so I speak all right again now." Asked for examples he replies :— " I am talking to somebody about something—something out of the paper—the war, the triumphal entry——and I feel as if I had read it in the paper before now. So I got frightened, as if I had read it in the paper before—the same paper, the same surroundings, all happened to me before—as if I had read it in the same room before, say a year ago. Everything just the same." Another example : " I was lying in bed, when K. came and said, ' Karl, Karl, Müller is dead.' " (Müller was a fellow-patient and friend of his, who had died suddenly one night during an epileptic fit.) " Then I got afraid—Müller died before —Good God, he can't die again. Just as if I had been through it all before—the same K., myself in bed, and the same answer." * I should add that in all these cases the effort to recall the previous situation clearly is fruitless.

Here, then, we have a strange situation apprehended as familiar. So it is a question of error of recognition, not involving any memory-process, and not resting on a probable inference of the sort I have described. Recognition is based on simple familiarity-quality. What is this phenomenon due to ?

Of all the explanations offered that which was first given by SANDER makes the most plausible impression. SANDER assumes that " in many cases the situation is certainly similar to previous ones of which only dim traces remain in the memory, and they are taken as identical because the memory is so defective. The similarity need not extend beyond a part of the event or beyond one of the objects or persons that enter into the situation. Part of the present process being similar to a past experience awakes all the ideas and feelings as if one had been through the whole process before in an analogous way. At the same time it is possible, and perhaps fairly often the case, that the process which the present situation appears to resemble may not

* SANDER, *loc cit.*

have been an actual experience, but only a product of fancy. For instance, it may have been dreamt or often and vividly imagined."

Something more may be added in support of this view. In epileptics the phenomenon occurs most often during periods of frequent fits; in normal people it occurs chiefly when they are very tired. Now in both these conditions the power of concentration is very weak, and we may fairly take it that the perception of the actual situation is very indefinite. This indefiniteness facilitates identification of the present with a previous situation, which was in fact only partly identical. The greater frequency of the phenomenon in the young will then be explicable by the greater activity of their fancy in sketching pictures of the future, which must make possible more frequent coincidences of past imaginations and present experiences. Nor will it be difficult to understand the disappearance of the mistake when attention is concentrated, for only then is the present situation accurately perceived.

On the other hand the fact that all attempts to recall the previous situation clearly are in vain seems to tell against this view. If a dim idea of a definite previous situation were really involved, surely it would now or again become clear and distinct at some stage. I admit that we could not expect it to be so if the present situation included a large number of individual parts, all of a high degree of familiarity, for then the reproduction of separate ideas would necessarily be much obstructed. My former pupil and present colleague, Mr. NETSCHAJEFF, has been good enough to point out to me that TOLSTOI has sketched an imaginary case of the kind in his poems, and I am not prepared to deny that such cases may be found; at the same time I have never met with one, and find no grounds for maintaining their existence either in the literature of normal psychology or in mental pathology. Plenty of pathological cases are to be found in which the several parts of the situation are really strange to the patient and yet are every one of them regarded as familiar by him. FOREL, for instance, mentions a patient who asserted he had been in the asylum a year before, and said he recognised every detail about it—the Superintendent, the patients, and everything that was said to him, word for word. "Every position, every attitude, every word that any one spoke was to his mind a repetition down to the minutest details of an original which he localized in the past. All he perceived aroused the

idea in him that he had gone through it all before under identical circumstances, and he imagined that on entering and leaving the asylum last time he had been stupified and deprived of direct memory of what had happened, and that now at last, on seeing the same things and having the same experiences again, he was beginning to recollect it all. So he believed logically enough that he was a year ahead of the real time, and perpersisted in writing 1880 for 1879. 'I wish I were well out of this place,' he said, 'now that Doctor Schmidt keeps on trying to make me forswear what happened quite lately. I foresee I shall have to leave without a character again, as I did last winter, for one doesn't drink the water of Lethe before death. I have already explained my uncertainty about the year; I must beg you to look up the records of patients *for last winter*.'" He suffered from paranoia with ideas of grandeur.

In short, I feel bound to uphold the objection that I raised against SANDER'S view, even in the improved form we gave it. *What about the genesis of the familiarity-quality, then?* All that we can say with certainty is negative. *It cannot be based upon similarity-reproduction, or it would not be found when even the details of the present situation are all strange.*

Is the revival of reproductions unusually facile when it occurs? By no means. Patients have more than once asserted just the opposite.

I am not able to offer you anything that can strictly be called an explanation, but must be content with a mere conjecture, for the number of pathological cases as yet observed is very small—KRAEPELIN enumerates nine—and the conditions of the phenomenon are not very evident from them. Since any interpretation is very improbable that is based upon a supposed connexion of content between the present situation perceived and some experience in the past, I am inclined to conjecture that it is due to reproduction of an idea of a previous state of the self. Hence the frequency of the phenomenon among epileptics, in whom the self acquires abnormal prominence.

You might reply that this involves similarity again, since the reproduction must be regarded as starting from a present state of the self. But even if similarity were to operate in the way that HÖFFDING supposes, that would not explain why the total present situation is apprehended as familiar, whereas this follows naturally from the content of the representation of a previous state of the self. And normally, when such a representation results in recognition,

it would most naturally be regarded as based upon association of the previous state of the self with the previous perception of the object, so that there is really reproduction by contiguity, though of a special kind.

However, as I said, these remarks remain purely hypothetical for the present. All that pathological cases establish, in my opinion, is that familiarity-quality does not rest upon similarity-reproduction.

There is one general remark I should like to make about it in conclusion. Whatever the truth may be, you must not take it that the mere presence of the familiarity-quality is recognition. *You must distinguish its being there from the apprehension of it as meaning familiarity.* In other words, it has to be interpreted before there is recognition, and interpreted, of course, on the lines of one of the forms of recognition that I have been describing.

Recognition which rests on familiarity-quality, or on a probable inference, I call *indirect*, in distinction from the first kind which involves memory, but I call it indirect in reference to its genesis, and not to the immediate impression that one has when one recognises anything.

SEVENTEENTH LECTURE

Consciousness of self, its anomalies, constituents, and genesis.

I PASS on to-day to *anomalies of the consciousness of self**. The old psychology thought that the problem of consciousness of self lay in the self-reduplication it was supposed to involve: if I express the fact in the words "I have an idea of myself," I am subject and object at once. We dispatched this problem as empty in the first lecture. Mental pathology and normal psychology alike teach us that the self is a complex magnitude, and the really important question to ask is what its several constituents are.

I will begin by laying before you the pathological data which enable us to arrive at a partial answer to this question; and, as it can be done in a few words, I will then try to make a complete list. (We shall find that there are one or two problems raised by our pathological data in solving which the assistance of normal psychology will be necessary.) Then finally I will speak of the genesis of consciousness of self, and so make clear the relative importance of its different factors.

Our examination of the condition of mental fog in epilepsy showed us that organic sensations play a part in the determination of consciousness of our own personality. If they are abolished or modified, it is affected both directly and indirectly. As we saw, it is affected indirectly because a modification of organic sensibility occasions defects of memory, which result in alterations of personality. (I shall return to this point again.) But there need not be an intermediate link of this kind; the effect may be direct, as you may see from the old case of MICHÉA'S that has been quoted so often, where loss of organic sensibility entailed loss of the consciousness of personal identity.

"A soldier, who had been badly wounded in the battle of

* The author uses the single term *Ichbewusstsein* throughout. I have allowed myself the use of several variants.—*Tr.*

Austerlitz, believed himself dead. When asked how he was, he used to reply: 'You want to know how old Lambert is. He is no more; a cannon-ball has killed him. What you see is not he, but a wretched machine made to look like him.' This patient never spoke of himself in the first person, but always talked of himself as 'it.' His skin was anæsthetic."*

I myself have recently observed an interesting case of loss of organic sensations and derangement of consciousness of self without anæsthesia. The patient in question was suffering from degenerative insanity, which began with imperative ideas, and then developed intense hallucinations of the muscular sense. She is the same person who, as I told you in an earlier lecture, used to think she was lying on broken glass, or felt she was being beaten or was hovering in the air, and the like. Her hallucinations were followed by total abolition of the sensation of her body, and during this condition the whole of the muscles of her body remained in the state of catatonic rigidity, which had come on during her hallucinations. In this phase of her malady she complained that her body had gone and she was dead; but moderate or strong pressure with one's finger on any part of her body would recall that part into existence again for her. If any one pressed her arm, for instance, she would say in surprise, "Now it's there again," and similarly with her legs, breast, abdomen, or head. The loss of her head troubled her most of all, and so she used often to ask her doctor or nurse to press it, so as to revive the sensation of it; and after it had been found that the sight of it in a mirror was equally effective, she often requested to have one held in front of her, that she might see her head in it. This always calmed her. I should add that the effect of pressing any part of her body lasted only about half a minute if the intensity of the pressure was kept constant. A carbonic acid gas bath had the same effect on her whole body as pressure on special parts of it, except that she remained conscious of its existence as long as this stimulation of the skin continued.

In this case, you see, loss of the sensation of the body is united to profound derangement of the consciousness of self. One consequence is evident in her expressions, such as "I am dead," "I don't exist any longer," "Why don't they bury me?" This patient is a person of mediocre education, and probably the effect

* Quoted from RIBOT, *Maladies de la Personnalité*, p. 37, where other old cases may be found.

of loss of organic sensibility varies with the level of mental development.

Organic sensations, then, as cases like this show, *are a condition of consciousness of self; and the awareness of one's body, which is due to them, must be regarded as one constituent of it.* We shall see by and by what its position is in the total complex of constituents.

When we were dealing with states of mental fog we found that alterations of organic sensibility sometimes occasion defects of memory in which whole fragments of one's life are lost. Now before I begin to discuss the connexion between such defects of memory and consciousness of personality, there are two distinctions I want to draw.

The first is that in abnormal states of fog different conditions of personal consciousness are sometimes accompanied by awareness of the difference, and sometimes not. When in hysteria a state of fog, during which speech and action have been sensible, is followed by amnesia of it in the normal condition, the subject is unaware of the difference between the present and previous states of his personality; he knows nothing about it because of the amnesia, and only an observer can affirm that there is a difference—or perhaps the subject may be aware of it himself in the abnormal condition. But there are other cases in which the subject is conscious of the difference, as often happens e.g. after mental fog in epilepsy, when there is a general memory of the clouded state, though not memory for the details *; or, again, occasionally in hysterical cases during the abnormal condition, as I hinted a moment ago.

The second distinction is this. The term "different conditions of personality" may apply to different conditions which are separate from one another in time—alternating personality, to use our former name—or to simultaneous differences, though, as you remember, I deny that different personalities can coexist, and have another way of interpreting those ideas and actions which are often "explained" by a coexistent second Ego, the Ego of the "lower consciousness."

These distinctions drawn, I turn to discuss the connexion between partial amnesia and conditions of personal consciousness, referring you for an account of those defects of memory to what I said in a previous lecture.

Let us take that case of Dr. BREUER'S, in which the patient

* *Summarische Erinnerung.—Tr.*

in her abnormal condition remembered the events of previous abnormal states and of normal states, whilst in her normal condition she forgot what had happened during the abnormal periods. In the abnormal state she is aware of the difference from her normal consciousness of herself. Why? What she remembers is different, no doubt. But is it this difference in what she does actually remember that makes her states of personal consciousness different? Is it not rather the difference in her *power* of memory? When an hysterical patient behaves, judges, and acts in a sensible fashion during a state of mental fog, and then forgets all about it on returning to her normal condition, why do we hold that her personal consciousness has altered? Is it because of a difference in what she does remember. or because of a difference in what she *can* remember? The answer is evidently that *difference in capacity of memory is one of the essential conditions of our rating states of self-consciousness as different.*

But that is not all. Think of those cases of alternating consciousness where the abnormal condition attaches to previous abnormal conditions, and the normal condition following it attaches directly to the last normal condition and seems to succeed it without a break. What leads us to speak of different states of personality there? Evidently the fact that the mental state at any moment, especially if it is a normal state, cannot be taken by the subject to be the last member of an uninterrupted series of successive states. So we must reckon as one of the constituents of normal consciousness of self *apprehension of the present mental state as the last member of an uninterrupted series of successive mental states.*

Other constituents are revealed by cases such as were first described by Dr. KRISHABER *, under the name of *neuropathia cerebro-cardiaca.* They were quoted by TAINE †, who showed their significance for this part of psychology. I will begin with an account of KRISHABER'S cases and the conclusions that TAINE draws from them; but it will be necessary to supplement the description in the light of more recent observations, and also to supplement and in some points to correct TAINE'S conclusions.

One of KRISHABER'S patients described his condition in these words ‡: "I stamped on the ground, and noticed its resistance,

* *La neuropathie cérébro-cardiaque.*

† *De l'intelligence*, 3rd and subsequent editions, note at end of Vol. II.

‡ *Ibid.*, 10th ed., p. 470 ff. I am indebted for some phrases to JAMES, *op. cit.*, I. p. 378.—*Tr.*

but this resistance seemed illusory to me; not that the ground seemed soft, but the weight of my body seemed reduced to next to nothing. Still more remarkable was the disorder of my vision. I can get much the same effect now by looking into a very concave glass, No. 2 or 3, for instance—my eyes are almost normal—except that then objects did not seem so small. Or again, if I look through the wrong end of a pair of opera-glasses—that is a better comparison, but not quite accurate; I should say that things did not seem so small, but far more distant. Here is another peculiarity, as to their form. Things appeared flat. When I was talking to any one I saw him like an image cut out of paper, with no relief. This sensation lasted a very long time, for several months on end, and intermittently during two years. My disorders of hearing were quite constant. I felt as if my ears were stopped up; I was astonished to hear at all, but as a matter of fact I heard most distinctly, and often much too well, for auditory hyperæsthesia was one of my worst tortures. My sense of touch was only slightly impaired . . . my sense of taste still less, but I suffered from hyperæsthesia of smell for a long time, though it was never so excessive as the hyperæsthesia of vision and hearing. The darkest spectacles were not dark enough for me, I wore them double, and finally hit upon the idea of blacking them with soot. . . . I always felt as if my legs did not belong to me, and it was nearly as bad with my arms, whilst my head did not seem to exist at all. . . . I felt as if I were acting automatically, owing to some impulsion foreign to myself. Sometimes I would ask myself what it was I was on the point of doing. I was like an impartial spectator watching my own movements and words and acts. There was a new being inside me, and another part of myself, my old being, as well, and the latter took no interest in the newcomer. I distinctly remember saying to myself sometimes that the sufferings of this new being were indifferent to me. Yet I was never really the dupe of these illusions, but my mind often grew tired of incessantly correcting the new impressions, and I let myself go and lived the wretched life of this new being. I had a burning desire to see my old world again, to become my old self again, and this desire kept me from killing myself. . . . I was another, and I hated and despised this other; he was perfectly odious to me; it was certainly another who had put on my form and assumed my functions."

We must draw a distinction here, as TAINE remarks. "During

the first period, immediately after my attack," says the excellent observer, " it seemed to me that I did not belong to this world any more, that I did not exist any more, that I did not exist at all. I did not feel as if I were another then, but that *I no longer existed at all.* I touched my head, my limbs ; I felt them. Yet it needed a great struggle of mind and will to believe in the reality of what I felt." This condition lasted some time before he came to believe he was another person.

What conclusions does TAINE draw from cases of this kind ? He argues firstly that *the existence of a chain of successive mental states of one subject is a condition of consciousness of self*, and secondly that " *the self . . . is a product. Its first factors are perceptions*, and, when observed at different moments, it is the same, and appears the same to itself, only because the constituent perceptions always remain the same. If they suddenly become different, so does it become different and appear different to itself ; if it is to become and seem to itself the same as it was again, they must become the same again."

The first of these conclusions is unassailable, but I cannot admit the second. TAINE thinks that in cases like that just quoted it was the difference of perceptions in the different conditions that led the patient to believe he was another person. I think it was not the knowledge that his *actual* perceptions had altered in the morbid state, but the knowledge that his *power of perception* had altered. He finds that his perceptions are different. What does he take to be the reason ? (He knows his condition is abnormal.) Not a change in the objects, but a change in his own perceptive powers. They are different, and because he recognises how totally different they are from what they were, he thinks his self has changed. So we must hold that he takes his self to be altered because he notices an alteration in his power of perception, and accordingly *the awareness that one can have certain perceptions* must be a constituent of consciousness of self.

But the account of KRISHABER'S cases needs to be supplemented in view of recent observations, which also furnish data from which we can infer another essential constituent. SCHÄFER *, and still more recently BÖTTIGER †, have described cases which resemble KRISHABER'S, and confirm what he said as to alterations of perception and of personal consciousness. But they

* *Allg. Zeitschrift f. Psychiatrie*, Bd. 36.

† *Über Hypochondrie* (*Archiv f. Psychiatrie*, Bd. 31).

make one very important addition. They point out that there is a profound derangement of affectivity. The patients are apathetic about all that happens to them; *they have lost the feeling of activity or effort that used to accompany their thoughts and actions, and so they seem to themselves like lifeless machines.*

Keeping close to the patients' own statements we can see that they are led to look on their selves as altered on account of their diminished perceptive powers, as well as of the loss of their feeling of activity, and it is the more evident that these two factors co-operate since now one and now the other is much more prominent in different cases, whilst there is no corresponding variation in the result.

Thus pathological cases enable us to infer that the feeling of activity or effort is also a constituent of consciousness of self.

I will now arrange in a systematic order the constituents of self-consciousness revealed by our pathological studies, supplementing them from normal psychology wherever our morbid cases raise problems that we have still to answer.

I. One constituent of personal consciousness is, as we have seen, *awareness of one's own body.* You remember how abolition of the sensation of the body led to alterations of personality.

II. Next come *feelings of activity.* Here we have a couple of questions to ask of normal psychology. Does awareness of all present mental acts enter into self-consciousness, or only awareness of those acts which are present at any moment that we are conscious of self? And secondly, what is the nature of the connexion between feelings of activity and consciousness of self?

So much is certain, that perceptions (let us say) cannot be imputed to the self unless they are themselves apprehended as such; and I think we may venture on the positive statement that *all mental acts apprehended as such are imputed to the self,* for do we not call them *our* perceptions, ideas, and so on?

Now for obvious reasons my feelings will be more easily apprehended by me as such than any other mental acts, and that seems to be why they appear to belong more closely to the self.

But even among feelings those of activity occupy a special position in relation to consciousness of self. In the first place the idea of one's self as an individual with a body and a mind is certainly reproduced more easily through feelings of activity than, say, through the feeling-tone of sensations, in the main, probably, because the more intense affective states are accompanied by

pronounced bodily changes, and the sensations of these changes facilitate the reproduction in question. In this way feelings of activity may figure as *causes of the occurrence of states of self-consciousness.*

But there is another connexion as well in which they play a special part with reference to consciousness of self. It is in the feeling of activity, when accompanied by a mental or bodily change, that we fancy we are directly aware of our will as the cause of some change in mind or body. Whether we are right in thinking so does not concern us here; let me remind you of HUME'S discussion of this point. Anyhow, we do think so. Indeed, this imagined causal power of our volitional self seems to us so far-reaching that it results in the conviction of the freedom of our will, for beyond doubt every naive mind is convinced of that. So we may put it that *feelings of activity are the condition of our regarding the spiritual self as within wide limits independent* as against the material world—for this also forms part of our belief.

The causality of our self in willing, as feelings of activity make us aware of it, is supposed to extend both over our mental processes and over our body. In reference to mental processes it is most evident in thinking, when it forces on us the consciousness of the unity of our spiritual self. But since our will affects our body also, we come to think of our complex bodily and mental nature as a unity, and indeed believe it to be a datum of immediate experience that mind and body are causally determined by one and the same will.

Directly and indirectly, therefore, feelings of activity determine the content of consciousness of self, and they also tend to reproduce ideas of self. But besides them, as we saw, all actual mental acts belong to consciousness of self, so far as they are themselves apprehended as mental acts.

III. We found in addition that awareness of our *power* of remembering and awareness of our *power* of having perceptions are constituents of consciousness of self. The former we inferred from cases of hypochondria, the latter from cases of alteration of consciousness. We have now to ask whether this connexion is confined to the powers of *memory* and *perception*, or whether awareness of our power to perform any mental function is a constituent of our personal consciousness. Why should these two functions be specially privileged? Is not the same true of the powers of judgment, feeling, will? Normal psychology

must undoubtedly answer in the affirmative. Awareness of these other powers is also a constituent of consciousness of self, which thus includes consciousness of *power to perform any mental function.*

But evidently the self of which we are thus conscious is not the same self we were speaking about before. That self was an immediate datum, this self is reached *by an inference of the naive mind.* But as soon as the self is represented thus, this view of it becomes the dominant one in our consciousness of our own personality.

IV. The study of abnormal alterations of consciousness showed us that it is part of consciousness of self to *apprehend the present condition of the self as the last member of an unbroken series of successive mental processes.* The members of this series are the different states which pass continuously each into the next, being only arbitrarily separable from one another, and appearing more or less similar to one another. It is this that leads us to regard our self as identical.

That, I think, completes the list of the principal constituents of self-consciousness. Their relative importance is best seen if we trace its *genesis.*

The first stage of the development is when the child takes its body as being its own body—as its self, in contrast to all other bodies, which are not-self. But how does the child come to do this ? Well, first of all, there is much more frequent association between the idea of its own body and its feelings and desires than between these and the idea of any other bodies. Suppose the child's body is externally at rest. Various muscles are in in some degree contracted all the time. Hence arises a more or less distinct idea of the position of the body. Moreover, part of our body is a constant element in our visual perceptions. Thus a more or less distinct idea of our body permanently accompanies our feelings and desires. Again, bodily changes produce changes in our feelings; and desires, which in children are always directed upon external objects, are followed by movements of the body.

However, it is not only this vastly greater frequency of association between our feelings and desires and the idea of our own body that tends to make the connexion intimate. There is also the circumstance that the most violent feelings are just those which we refer to our body—I mean feelings of pain, due to

bodily injuries, and localized in the body. Thus of all associations between feelings and ideas of objects the most intense is that with the idea of our own body.

These are the ways, then, in which the idea of our body becomes intimately associated with our conscious acts. But regarding our own body as inbound with our feelings and desires and all other bodies as unconnected with them, we look on our body, the bearer of our feelings and desires, our feeling and desiring body, as our self in contrast to other bodies.

In the further course of development a gradual modification of the consciousness of self takes place, the awareness of our mental functions as such being a constituent of ever-growing importance. Psychologists who have made a detailed study of the genesis of consciousness of self generally distinguish a stage when the body is regarded as percipient, and a higher stage when it is regarded as having ideas, the latter being posterior in time; for perception, they argue, is a later developed function than ideation. That seems to me quite wrong. It is not a question of which function is first developed, but of which is first apprehended by the subject as a function of himself. Granted that perceptions are earlier than ideas, it does not follow that the perceptual function is apprehended sooner as being what it is. Nor is it so in fact. We come to look on our body as having ideas more easily, and therefore sooner, than we are conscious of it as percipient. In the early stages of our development we are wholly concerned with objects in perception, and the subjective factor does not come before consciousness at all. But it is different when we represent absent objects in idea. Then the mental function as such forces itself on our notice, for the object represented is not directly given.

The development of volitional thought and action helps us, as I have indicated, to look on the mental part of our self as a unity and a relatively independent being, and leads to the spiritual aspects becoming increasingly prominent in our idea of self.

But the chief place, as the idea of self develops in naive minds, belongs undoubtedly to the conception of the self as possessing the power to exercise mental activities. Practical interests force us to acquire an idea of our own capacities, since we need such an idea in order to guide our acts of will.

That finishes what I have to say of consciousness of self from the pathological point of view. I shall deal next time with *morbid errors of judgment* or *insane delusions*.

EIGHTEENTH LECTURE

Imperative Ideas and Insane Delusions. What is the coercing force in cases of Imperative Ideas?

INSANE notions or insane delusions * are ***delusions of judgment dependent upon pathological conditions***, and marked in a very striking way by the character of ***incorrigibility***, no sort of contrary idea availing to correct the erroneous judgment. This is only a rough definition, but it will do for the present, for before we enter upon a closer investigation it will be convenient to discuss *Imperative* or *Coercive Notions* †, which border upon insane delusions, sometimes turning into them when the coercion becomes very intense. No doubt when this happens the result is a delusion of a paroxysmal nature, since imperative ideas occur in a paroxysmal way, but it is a genuine insane delusion for all that.

As a preliminary to what I have to say about imperative ideas, I will quote the definition of them given by WESTPHAL ‡, to whom the study of the subject is greatly indebted. He says that they are "ideas which enter into the foreground of consciousness against and despite a man's will. It is impossible to drive them away. They impede and thwart the normal train of ideas, and their victim invariably recognises that they are abnormal and foreign to him, and confronts them with his sane consciousness." The characteristics that WESTPHAL emphasises, you see, are firstly the mental coerciveness with which the ideas are forced upon consciousness; secondly, the consequent derangement of the train of ideas; and, lastly, the subjective consciousness of abnormality.

Such imperative notions or imperative ideas—the latter is the commoner term, and WESTPHAL himself defines imperative

* *Wahnideen.*—*Tr.*

† *Zwangsideen*, afterwards usually *Zwangsvorstellungen*. I have used the terms Imperative ideas, Coercive ideas, Insistent ideas, and Obsessions indifferently.—*Tr.*

‡ *Die Agoraphobie* (*Archiv f. Psychiatrie*, Bd. 3).

notions as ideas—are not confined to pathological cases, but occur in ordinary mental life as well, though not in such a pronounced degree. If, for example, you write a number of letters, address envelopes for them, and then close them, taking care to put the right letters in the right covers, you may very well be worried afterwards by the thought that one of them was possibly enclosed wrongly, although you remember that you made sure they were all put in the right envelopes. Similar notions often occur to one in medical practice, if one takes widely different drugs out of similar-looking vials. Psychiatrists have frequently to give their patients morphine and hyoscine. Now suppose one has prescribed hyoscine with 2 gradations of a Pravaz syringe as the ordinary maximal dose, and morphine with 10 gradations as the maximal dose, it sometimes happens that after filling a morphine syringe—some little time after, as a rule—one is pestered by the idea that one may have given hyoscine instead, 10 gradations of which would be fatal, and this though one may have carefully noticed the label at the time.

Here are a couple of pathological cases. One comes from THOMSEN *, the other refers to a patient of my own.

THOMSEN'S patient was a man of great ability and jovial temperament, but gravely tainted. In consequence of chronic gastric catarrh he had lost 30 lb. in weight, and then his obsessions began. " The abnormal condition came on quite suddenly. He saw his wife talking to a great friend of his in the garden, and like a flash the thought passed through his head that there was an improper connexion between them. Though he was quite well aware on internal and on external grounds that the notion was senseless, it would not let go of him, but occupied his mind incessantly. He was careful to conceal it from every one, but seemed depressed thenceforward, without interest in business or in amusements, sleeping ill and losing appetite. It did occur to him that he would be beggared if he neglected his business, but simultaneously with this thought arose not only the notion that his wife was unfaithful, but a violent impulse to kill her and then commit suicide. He carefully removed all weapons from the house and avoided any opportunity, striving continually to divert his attention from this idea, since he knew perfectly well how senseless his suspicions were.

" His wife was consumptive, and one day, as he was massaging her shoulder, the idea of strangling her came over him with

* *Archiv f. Psychiatrie*, Bd. 27.

such coercive power that *he fled, for fear of putting it into execution.*"

A patient of mine, a butcher by trade, used often, in the exercise of his calling, to be harassed by the idea that he might slay his wife and children with the axe he held in his hands. Of course it was accompanied by a feeling of apprehension, and he kept proving to himself how absurd it was; but he could not get rid of it, and was so tormented by it that in the end he went voluntarily to an asylum. There it was noticeable that the moral reproaches which he used to heap on himself for having such ideas only served to fix them more firmly. When he was brought to see that he had no reason to reproach himself, his remorse vanished for a time, and therewith his coercive ideas became less intense.

These cases will suffice to give you a notion of what is meant by imperative ideas, and we may now turn to a discussion of them. I shall proceed to ask—

(1) *What is the coercing (or fixating) force?*

(2) *What is fixed?* Ideas only, or other psychical magnitudes as well?

(3) *What are the secondary results of this fixation? Is a judgment of reality present, and if so, on what does it depend?*

The first of these questions has received several different answers. Some writers hold that the fixation is due to abnormal intensity of the ideas themselves; others make emotions, and especially the emotion of anxiety, responsible for it. In this connexion they distinguish primary and secondary anxiety. Primary anxiety attaches to the idea which is compulsorily fixed; whilst secondary anxiety includes two varieties, the first attaching directly to the fixed idea, more or less as its affective tone, and the other developing as a result of the forcible obtrusion of the idea. Thus in this last sense the emotion is secondary relatively not only to the first occurrence of the idea, but to its coercive fixation as well, the fixation being prior to the anxiety; whereas the secondary anxiety that attaches immediately to the idea may be regarded, like the primary kind, as implicated from the outset in the process of fixation itself.

I propose first to answer the question whether anxiety is really the cause, or at any rate a contributing cause, of coercive fixation. The answer will be a decided affirmative. I shall then

adduce certain facts which render it probable (in some cases, at any rate) that strain sensations also co-operate. And finally I shall discuss whether "heightened intensity of the ideas," as certain writers put it, may not be regarded as an additional co-operating influence in particular cases.

First, then, as to the question of the part played by emotions in the process of fixation. Let me cite to you an admirable case of BINSWANGER'S *, and annex my reply to it.

The patient was a woman, 65 years of age. Her development in childhood had been quite normal; she was a healthy, merry young girl. But even shortly after her marriage, at the age of 21, her husband used to chaff her about her exaggerated timorousness. Although she assisted him excellently in his business, keeping his books and looking after the shop, she was strikingly deficient in self-reliance and decision the minute she stepped beyond the ordinary daily routine of shop and home. It was above all in nursing the three children, who had rapidly followed one another during the early years of her marriage, that she displayed exaggerated anxiousness. She would lie awake at night wondering whether they were properly put to bed, whether the nursery windows were properly closed and everything in its right place there, and could not get to sleep till several journeys had convinced her that all was well. Later on, when the children began to go to school, she was often possessed by the idea that something might have happened to them on the way. At night she was constantly worried by doubt whether all the gas cocks had been properly turned off. She could never undertake a journey without her husband, whether the children were with her or not, for before getting so far as the station she would be overpowered by fears of some accident befalling her.

It was not till late in life, however, that her fears assumed a definite form. Her husband had then been dead for twenty years, after six years of suffering, during which she had had to nurse him in addition to all the worry and trouble of managing the business. All through his long illness her sleep was frequently broken, and her general anxiousness was intensified by the thought—true enough in itself—that his incurable malady would soon terminate in death. When death did come she was totally exhausted, physically and mentally. Three days later the idea came upon her suddenly, "like a bolt from the blue," without any reason and not as the result of any special emotional

* *Pathologie und Therapie der Neurasthenie.*

excitement, that she had brought about her husband's death, for there was an ointment she should have rubbed on his neck, and perhaps she had brought it near his mouth and so poisoned him. She was perfectly conscious of the absurdity of this train of thought, but could not suppress it.

A year later there began to develop in her mind the imperative ideas which dominate her with varying force up to the present day. They set in after the severe illness of a companion who had lived with her for many years, helping her loyally in the business, and whose strong energetic character had often relieved her of the necessity of making up her own mind. Here, again, she was possessed by the idea of responsibility for her friend's illness. She mentally brought every object of her home and her business into the closest causal connexion with this notion. She might, for instance, have introduced the poison or germs of infection—there was an epidemic of typhus in the town—on matches, or bits of glass, coal, dirty plates or cups, or washing. Gradually the insistent idea grew, till everything she did seemed harmful, and everything that happened to her seemed bound up with it. Most dangerous of all for her was the sight of needles, scissors, knives, or any sharp instrument, for it at once occurred to her that she might injure somebody with them. If she saw a plate she would weave a whole train of ideas that she might have put poison on it and some one in the house might use it and fall ill.

So she lived in constant fear and trouble. When her obsessions became numerous, she had most violent fits of anxiety, with feelings of distress penetrating right through from spine to breast-bone. A feeling of chill came over her; her limbs failed; she trembled all over. She would throw herself upon the ground in fear and desperation, breaking into convulsive sobs and imploring heaven to release her from her misery by death. "These ideas are terrible; their folly horrifies me. If I refuse to obey them, and strain every power to escape them, my anxiety only grows the more, and I actually find a sort of relief in returning to them. I live in an incessant struggle, which galls my feelings and drives me to the verge of suicide."

As I have said, her ideas vary much in intensity. When she is in a sound condition of health physically, and particularly when she has been sleeping well at night, she can suppress them in the germ by directing her attention to other objects. In these periods of calm she is an excellent practical woman, managing

her household and money matters without assistance. But any bodily uneasiness, any great call on her muscular activity, or emotional excitement*, or undue mental effort, results in intensification of her ideas. The first symptom to develop, as she states quite explicitly, is a general indefinite feeling of anxiety, and a very vague idea of having done some harm. This condition lasts for several days before a paroxysmal outburst follows, in which the imperative ideas assault her with full violence and produce the state of absolute abandonment and desperation which I have described.

Here it is quite clear that morbidly intense anxiety is the cause of the morbid intensity with which certain ideas are fixed. The patient suffers from "exaggerated anxiousness." Ideas that in other people involve nothing more than mild uneasiness—e.g. the thought that the children are not properly put to bed, or that some accident may have happened to them on the way to school—are in her conjoined with a pronounced emotion of anxiety. At other times she has this emotion when other people would have none, e.g. when she fancies that an accident may overtake her on a journey, or that she may have killed her husband when rubbing an ointment on him by (what is a pure fiction) applying it casually to his mouth, or that she may have poisoned the plates, which will kill somebody in the house, or might injure some one with needles, scissors, knives, etc. These thoughts pester her: *once they are there, she cannot get free of them.*

To what are these abnormally strong ideas due? They cannot be due to anything but *the abnormal violence of her feelings of anxiety*, to which she is morbidly disposed. It is not the fact that determinate ideas with this or that content forcibly obtrude themselves by means (let us say) of their own "abnormal intensity." The contents of her ideas are quite variable; they have nothing in common but their conjunction with this emotion of anxiety, itself the result, as I said, of a morbid disposition thereto. If this disposition is modified, so is the frequency of her ideas. They are invariably intensified when "bodily uneasiness, or any great call on her muscular activity or emotional excitement, or undue mental effort," results in the growth of "a general indefinite feeling of anxiety." It is not until this condition has lasted for several days that "a paroxysmal outburst follows, in which the imperative ideas assault her with full violence."

* *Gemütsbewegungen.—Tr.*

The growth of this general indefinite feeling of anxiety conjoined with the foregoing idea, let us say, that she is doing harm, must obviously lead to an increase in the intensity and to greater frequency of the particular emotions of anxiety attaching to concrete thoughts.

Let me point out, by the way, that in this case all the three kinds of anxiety occur that we have differentiated as possible concomitants of imperative ideas. The general indefinite feeling of anxiety represents the primary type; there is also a secondary kind directly attached to particular ideas; and, lastly, there is the other secondary species which is consequent on fixation of the ideas, arising when the patient tries to escape from the thoughts that torment her.

Just as anxiety is evidently the cause of the coerciveness of the ideas in this case, so it can be shown in a large number of cases to be beyond dispute the cause of the coercive fixation. The butcher I spoke of could not free himself from the apprehension that he might slay his wife and children with his axe, just because he was so apprehensive—because the thought was conjoined with a strong emotion of anxiety; and similarly THOMSEN'S patient could not get rid of the notion of his wife's unfaithfulness because it was conjoined with intense emotion.

It is certain, then, that such emotions may cause coercive fixation of thoughts. How they manage to do so we shall discuss in detail when we come to speak of attention *. Let the fact suffice for the present.

So far we have proceeded with certainty. There can be no doubt about the influence of emotions, and particularly of anxiety. And, if not certain, it is yet *very probable that strain-sensations are also concerned in the production of imperative ideas.*

For, firstly, such ideas are often present in cases of audible thinking where articulatory impulses are intensified and the occurrence of sensations of the speech-apparatus depending on motor conditions is facilitated. So it seems as if these sensations promote imperative ideas. And, secondly, hallucinations of the muscular sense are sometimes found to alternate with such ideas. From the presence of hallucinations we may infer with a high degree of probability to hyperæsthesia of the centres for motor ideas with facilitated discharge of certain movements, and consequently with facilitation and unusual intensity of motor sensations. You remember that patient of mine who had hallu-

* Lecture XXIII, p. 258 ff.—*Tr.*

cinations of lying on broken glass, being beaten, and so on. I found in her case that muscular hallucinations and imperative ideas used to alternate. These facts render it probable, at any rate, that strain-sensations co-operate in the origination of imperative ideas.

The last point to be elucidated has to do with the doctrine that "*abnormal intensity of the ideas*" plays the principal part, or at any rate is a co-operative factor in this connexion. Is it tenable? Many psychologists might be inclined to regard it as dubious for the simple reason that as far as the mental processes of normal life are concerned the assumption of degrees of intensity in ideas is, they would say, inadmissible. You will recollect LOTZE'S treatment of this problem. But the psychiatrists might come to terms and say: We can set aside the question whether ideas as such, as psychical magnitudes, differ in intensity; *it is enough for us if we may regard their physiological correlates as doing so*, which you certainly cannot deny. When the irritability of the cortical centres is heightened, as happens in many morbid conditions of irritation, and at times also without doubt even in normal mental life to some extent, a stimulus of given strength will provoke a more intense excitation-process in the cortex than it does when the irritability of the same centres is normal. Consequently we assume such differences of intensity to exist in the correlates of ideas, these writers may be supposed to argue; and we think ourselves justified in maintaining that their abnormal intensity is the cause, or a contributing cause, of the occurrence of imperative ideas.

The most thorough defence of this position comes from FRIEDMANN, and we shall do well to examine his arguments one by one.

He first tries to support it by "the fact of coercion—that is, the fact that the idea asserts itself in spite of our will, driving out pleasanter ideas," and obtruding itself upon us "however great our repulsion." I am bound to say that it is not in the least evident to me how an idea that accomplishes all this can do so in consequence merely of the abnormal intensity of its physiological correlates. I do not see anything at all remarkable in an idea united to a strong feeling of unpleasure repressing some more pleasant idea: strong feelings of unpleasure represent far more psycho-physical energy than pleasant feelings. But let us look at the concrete example which is offered us.

"A man had the ridiculous notion that he could not walk past a certain house near his place of business, and so he used to make

a detour right round the square. There was nothing special about the house, but he had once felt uneasy when passing it. The association of the house with the memory of that uneasiness recurred as soon as he caught sight of it, making him desperate, of course. Our ordinary means of diverting our thoughts by other ideas of a more congenial kind are of no avail here, and that is just what we mean by coercion, inability to drive the idea from consciousness." *

According to this account perception of the house revives memory of the uneasiness that he once felt when passing it; this recollection obtrudes itself with abnormal force and prevents him from going past the house again; and all because the correlates of an idea are abnormally intense! It is not clear whether this privilege of abnormal intensity appertains to the correlates of the idea of the house—the idea that revives the uneasiness—or to those of the ideas of the events that originally made the man uneasy; but since nothing is said as to these latter ideas forcing themselves forward particularly, and since as a matter of fact they usually recede into obscurity in such cases, they can hardly come into the question, and we may take it that the abnormal intensity is claimed for the correlates of the idea of the house, and this is to explain the insistent feeling of uneasiness. But obviously it is not true that whenever a feeling, aroused by an idea with which it is only connected in a secondary way, forces itself violently into consciousness, its power is due to abnormal intensity on the part of the idea. It may just as well be due to abnormal intensity of the feeling itself, or to the connexion of the two, or to several such factors at once. I cannot see that we have here any proof of the truth of FRIEDMANN'S hypothesis.

It may be said that the abnormal intensity belongs to the idea of uneasiness, and certainly it is this feeling which becomes fixed against the subject's will. I have kept this possibility to the end because I do not admit that such an idea is present at all. There is a reproduced *feeling* of uneasiness, and this feeling asserts itself against the subject's will. In short, I refuse to allow that there is any imperative idea or notion at all in this case; there is merely an imperative feeling. It is an ill-chosen example, and I have gone into it on purpose to show you this distinction.

FRIEDMANN'S second argument is that when an imperative idea has dominated consciousness for some time, a "painful

* *Über den Wahn.*

emotion" becomes secondarily conjoined with it. I reply that this does not entitle us to infer anything but *the intensity of coercion*. It proves nothing about *the origin of the coercion*.

Thirdly, he finds support for his view in the fact that imperative ideas "are always victorious in any competition for the formation of associations; in other words, they succeed in excluding notions which logically, and from the point of view of past associations, are much more closely related, and so produce perfectly crazy thoughts." As evidence of this he adduces what is in itself an admirable case. "A young girl of good intelligence, without any hereditary taint, and unusually quiet and natural in demeanour, was reduced by chlorosis and emotional excitement * to an extremely nervous condition. She was just leaving her room one day when she heard a shriek, and found that a neighbour's child had tumbled out of the window. Ever afterwards the memory of this event returned to her in full force as soon as she tried to open the door, and she fell into a condition of a most painful kind, such that not even physical needs induced her to venture out of the room. The psychological process is quite simple—a contiguous association; but in normal thought it would easily have been dissolved, since the absence of any causal connexion would have been recognised, and another idea (that of chance) associated."

Unfortunately I can find nothing in all this to corroborate the doctrine in dispute. An association has been formed between the idea of opening the door and the idea of the accident with all its emotional setting. Now even in a person of normal feelings the emotion evoked by such an accident would have considerable strength, and in a girl whom chlorosis and emotional excitement have already reduced to an extremely nervous condition it will, of course, have far more than normal strength, so that *when it is reproduced* its intensity will still be much greater than in a person whose nervous state is normal.

But why does the reproduced emotion obtrude itself with special force when the girl proposes to open the door? Because there is then a repetition of the situation in which the association was first formed with the experience of unusually vivid affective tone. She finds that as soon as she intends to open the door, and as long as she holds to that intention, she is troubled by the emotion, and as soon as she abandons the intention she recovers tranquillity. In this way the abnormally intense emotion

* *Gemütsbewegung.—Tr.*

impedes her actions. Possibly too it may render the association itself more intimate, which would increase its effect.

The train of mental processes may follow this course even though the thought does occur to the girl that the objective events are only connected by casual contiguity. If the reproduced emotion is sufficiently strong, this thought will arrive altogether "too late for the fair," but even supposing it does intervene at an earlier stage I cannot see how it is to abolish the reproduced emotion, which does not rest upon a belief in a causal connexion of the objective events.

A fourth argument in favour of the hypothesis is drawn from the fact that imperative ideas are often accompanied by *abnormally strong impulses, both active and inhibitive.* In one who suffers from such ideas some perception—say, of a knife—becomes integrated, it is said, with the idea of his nearest and dearest, and then induces the impulse to kill them. The connexion of percept and idea is entirely due to the mechanical reason that "a man's most vivid ideas are of his children, let us say, and except for the perceived object they fill the whole of consciousness. . . . Hence they are associated with a percept more readily than any indifferent object, like a bit of wood that he might cut."

The absurdity of this mechanical way of regarding the matter is evident in a concrete instance like this. I have said enough already to make clear to you how I should interpret such facts, and, generally speaking, I should raise the same objection to this argument from active and inhibitive impulses that I raised to the argument from secondary emotions: all that is proved is the intensity of the coercion, not its mode of origin.

But we are not at the end yet. FRIEDMANN affirms that he has noticed these impulses in cases where the co-operation of emotion was out of the question. He reports the case of a woman who on seeing a knife used to feel an impulse to kill her children, though she was very fond of them, and says that she spoke of such impulses "with an embarrassed nervous laugh, and a sort of child-like naiveté," appearing violently excited and vehement, or (more rarely) languid and limp. The main point is that her mood did not accord with her imperative impulses, and so it looks as if FRIEDMANN were justified in saying that "an affectionate mother who talks of killing her children, and yet, without being an imbecile, remains perfectly naive, cannot have derived her idea from her mood."

For all that I would not accept a case like this as proof that fixation is not the result of emotion, until it is shown, firstly, that the patient does more than merely talk of her ghastly impulse in this comparatively calm fashion—that when it harasses her she really is in a mood out of consonance with it—and, secondly, that her emotional attitude did not accord with it when it first possessed her. If that were established, and if it were also shown that she has no abnormal tendency towards strain-sensations, then I should be ready to admit in such a case that the cause of the imperative idea lies in the abnormal intensity of its physiological correlates.

There remain two other arguments to which we must attribute greater importance. First the occurrence of audible thinking with imperative ideas. "The audible idea is identical with the imperative idea; the feeling of innervation in the larynx, that accompanies *all* thinking in words, is intensified, and, as intelligence remains intact, the only conceivable reason is that *the whole idea is intensified.*" The answer to that is that the "feeling of innervation" in the larynx will be intensified just as well when the speech-centres alone are in a state of heightened irritability. There is no need to assume intensification of the correlates of the whole idea, but only increased irritability of the centres for articulatory ideas with consequent intensification of the correlates of these ideas and of articulatory sensations.

FRIEDMANN calls it audible thinking even when hallucinations and pseudo-hallucinations are absent and there are merely thoughts accompanied by abnormally strong feelings of innervation in the larynx. But keeping to cases where hallucinations do occur, having been preceded by imperative ideas, you might be inclined to accentuate the fact of their identity of content, supposing that there is such identity. Well, if we grant that the coincidence is not likely to be casual, I should reply that even so we are not bound to regard it as the result of abnormal intensity on the part of the correlates of the idea. It may be due to processes of excitation in the centres for articulatory ideas determining hallucinatory processes in the auditory centres, in the way I set forth in an earlier lecture. Indeed, the other alternative will certainly seem improbable if you reflect how rarely imperative ideas and hallucinations accompany one another. If every increase in the excitability of certain centres resulted in imperative ideas when relatively slight, and in hallucinations or pseudo-hallucinations when relatively great, we should expect to find

them frequently in company, and the fact would be inexplicable that in the majority of cases where they do occur together the hallucinations are complicated by abnormal excitability of the apparatus of speech.

Just as in these cases where imperative ideas are accompanied by audible thinking we must assume intensification of the correlates of articulatory ideas, so in cases of another kind we are forced to assume intensification of the correlates of the morbid impulse to count, which is comparatively frequent in neurasthenic persons who display other phenomena that indicate abnormal irritability of the central motor regions.

In the case of a neurasthenic patient, lastly, the whole of whose muscles used occasionally to fall into a condition of involuntary tension, I observed not only imperative ideas of an emotional kind, but others without any emotional connexions. He could not help stringing on to any given verbal idea others that brought up in a secondary way ideas of different objects. Thus he would begin with "lang," and go on "lange Strasse, Lange, Langerhans," etc.

FRIEDMANN'S final argument in favour of abnormally intense correlates of imperative ideas is drawn from normal cases of coercive thinking. He thinks that the genesis of the coercion in normal life proves that either the ideas must have been specially forcible and lively in themselves, or that we have previously directed our attention very firmly upon them, as in the case of a tune we have heard or a reflection we cannot get rid of.

As a matter of fact the imperative ideas of normal, no less than of abnormal, mental life are often manifestly dependent on emotional factors, as in those instances I mentioned of enclosing a number of letters in envelopes, or of the morphia syringe when one may be unable to free oneself of the idea of having mistaken hyoscine for morphia. And if in other cases like that of an insistent tune an appeal to emotional factors seems far-fetched, at any rate we cannot, in my opinion, avoid having recourse to the assumption of increased intensity on the part of the correlates of articulatory ideas.

So our conclusion is that increased intensity of the physiological correlates of ideas is not admissible as the cause or a contributing cause of imperative notions, except in the case of articulatory ideas. Nor is it difficult to understand why these latter occupy a peculiar position. Intensification of the physiological correlates of articulatory ideas gives greater strength and prominence to the

strain-sensations and motor-sensations arising from the apparatus of speech, and these sensations, as we have shown, are probably a cause, or contributing cause, of imperative ideas. Our present argument, of course, makes it still more probable that we were right before on this point.

NINETEENTH LECTURE

Imperative Ideas (continued). What is fixed? What are the secondary results of fixation?—Insane Delusions in Paranoia with judgment intact: morbid suspicion as their cause.

In the last lecture we inquired what the fixating force is in cases of imperative ideas. We have now to ask what is fixed. Is nothing fixed but individual ideas, as the name implies, or are other psychical magnitudes also fixed; and, if so, what are they? A survey of the cases we have already discussed shows us at once that as a rule what is imperatively fixed is not what one would expect from the accepted name of the disorder.

In cases of *impulsive verbal obsessions* *, or onomatomania, as it is also called, particular ideas are fixed, no doubt. Words force themselves forward, having as a rule an unpleasant feeling tone—such words as "damned," "cursed," "shame," "pig," "devil," "dog of a doctor"—and they do so against the will of the patients who often say they are afraid of "bad language." With these verbal ideas goes an impulse to utter them, a fact which we will leave over for consideration when we come to deal with the pathology of will.

The term *onomatomania*, however, is used not only for verbal obsessions, such as I have just sketched, but also for cases of *morbid search after names* †, as exemplified in a patient of MAGNAN'S.

"S., aged 60, is a curious specimen. He has dissipated his fortune, and never had any regular occupation. His paternal grandfather was regarded as eccentric; he had his son thr as a punishment for merely contemplating a misalli father was passionately given to gambling, held the army, and was looked on as a man of great his brothers died in an asylum. One sister

* *Wortzwang.—Tr.* †

finement, another suffers from paranoia completa, and is still living in an asylum. . . .

"At the age of 18 he suffered from melancholia for two months, and moods of morbid gloom have often recurred since. During the last few years he has shown a tendency to suicide.

"In April, 1884, S. met a man in the Champs Élysées, whose acquaintance he had made during a visit to Rome. He stopped and talked to him. After they had separated it occurred to him that he had forgotten the man's name. He tried to think of something else, but in vain; the desire to find that name only grew upon him the more. Vainly he racked his memory. It made him ill; he had a feeling of oppression, like spasm of the stomach. He returned home, his face dripping with sweat, his hands cold, and on the verge of fainting, and there paced up and down his room crying aloud in a state of utmost anxiety.

"At an evening party a fortnight later he met an old friend, whom he had not seen for years, and had a long talk with him. It was not till he reached home that he asked himself what his friend's name was, and then he tried to discover it, recalling every connected object that might put him on the right track. His efforts being fruitless, he tried to think of something else, but he could not, he was totally unable to lay hold of any other line of thought. He could not go to bed, he wept, sighed, paced to and fro, and finally threw himself down on a sofa in absolute despair. Nor did he become calm again until the man's name recurred to him.

"From that time on he lived in fear, worrying himself about the Christian names and surnames of every one he chanced to meet—drivers, shopmen, hotel-keepers, and so on. As soon as he had dealings with people, he wrote their names down on a piece of paper, and then he felt calm. The field of his activity gradually extended, and he was obliged to inquire after the names of strangers, of people he met in the street, and afterwards of passers-by, or even of people sitting in a train. The impossibility of satisfying his desire made him excited, wild, miserable, and forced him to avoid looking at any one in the street, to frequent lonely spots, and finally to keep to his own room." *

The principal feature of cases like this is the way in which the intention of searching for a name forces itself on the patient—the intention, that is, to recover a word which he remembers

* Translated from the German.—*Tr.*

was once in his consciousness. Hence it is evidently inappropriate to apply the same term, Onomatomania, to this attitude of morbid search and to impulsive verbal obsessions. In the latter an idea forces itself forward, but in the former a conation.* The one is strictly an example of imperative or coercive *ideas*, but the other is *coerced will* and belongs to a province of mental pathology which does not concern us at present.

The great majority of the cases of imperative ideas I have quoted really represent coerced fixation of *judgments and suppositions, the latter as a rule marked by anxiety or fear.* I need not go through the details of our cases again, but will rather give you a couple of additional examples to illustrate two types of these suppositions which usually receive special attention. These are *délire du toucher*, or dread of contact, and *folie de doute*, or doubting mania. In the following case of MAGNAN'S they are combined.

"B., 41 years of age, is a patient of great interest clinically on account of the large number of symptoms from which he has suffered. . . . There is nothing special to report about his childhood, except perhaps the beginning of his dread of contact, but to that we shall return later on. . . . From the age of 17 to 21 he was apprenticed at the trade of watch-making. His behaviour was regular, and he does not remember any eccentric actions in that period. No trace of chorea. But it is worth notice, since the same stigma is found in three other members of his family, that his eyelids move with a convulsive *tic*, to some extent without his being aware of it. This tic of the orbicular muscles continues with him to-day, and in his childhood it was accompanied by others. He used to keep shrugging his shoulders and contracting the muscles of his neck; his mother called him 'Grimacer.' He was never very gay. At times he had moments of ill-humour and kept away from his companions without knowing why, but he never had any idea of suicide. At other times he had moments of exaltation with slight excitement. But it was chiefly after he had passed 21 that he became the victim of all sorts of obsessions and impulsions. From 21 to 25 *doubt* troubled him. Though he was an excellent soldier, very prompt, and never punished for anything but undue leniency to his subordinates, he had exaggerated doubts about the way he was performing his duties, and they were for ever occupying his thoughts. 'It was exaggerated,' he said; 'I knew that well enough, but it

* *ein Wollen.—Tr.*

was too strong for me.' At the age of 26 he entered a public office, and did his work quite regularly, and until the last few years his doubts did not trouble him greatly. At the same time they were there, and appeared under all kinds of circumstances. One day, as he was packing his portmanteau for a journey, he spent such a long time over arranging and rearranging his shirts and other things that he nearly missed the train.

"For some years past his doubts have taken a very peculiar form. He has with his own hands nailed a number of pictures firmly on the wall. Twenty times a day the singular idea occurs to him that they may be loose, and then he has no rest until he has made sure of what he was really quite certain about already; he gets up, goes and touches the pictures, returns, then is overcome by doubt again, goes back to them—and so on several times. He may be reading a paper, when all of a sudden his doubt comes on him, and he cannot understand a word that he reads until he has been to make sure that the pictures are firm.

"Such is his proneness to doubt. As to his dread of contact, you should notice that it began in early childhood, and so preceded his doubting mania by some fifteen years. Furthermore, he inherited this symptom from his mother. Even as a child he had an irresistible impulse when at table to flick away with hand or knife every little crumb that happened to lie near his plate. The mere sight of a crumb was revolting to him. But the action was not like a simple habit; it was something more than that, and he was quite well aware of its ridiculous side, so that if he happened to be at a party and had to refrain from it, he suffered from acute distress, until he found a moment when no one was looking at him and was able hastily to brush any crumbs away. This singular mania earned him the nickname of 'sweeper'* among his friends.

"Even now it is far from cured, and persists in the same way. Other obsessions have joined it. He treats every little black speck that he finds in his food after the same fashion as crumbs of bread, carefully removing them, without being able to give any reason for this eccentricity. Nothing would induce him to swallow them. Recently he has found himself compelled to wash his hands fifty times a day, whenever he touches anything clean or dirty. This habit has grown absolutely irresistible. It resembles his mother's dread of contact; as we shall see, she

* As one might say, "crumb-brush."—*Tr.*

had to wash every time she handled a penny. Now B. cannot even touch any one's hand without rubbing his own on his coat-tails afterwards. Ask him why he does so, and he will be at a loss for an answer; the habit is too strong for him, and causes him pain, for he is well aware of its eccentricity. It has gone so far that he avoids his acquaintances, so that he may not have to wipe his hands." *

Our result so far is that in cases like that of B. there is fixation, not of simple ideas merely, but of judgments and of suppositions of an apprehensive character. Our next task will be to determine the nature of these "suppositions" more accurately. They represent a combination of ideas, but a combination of a peculiar kind—a combination, we may say, indicating a unitary ideal object, but not, like judgment, accompanied by consciousness of the real validity of its content.

However, the coercive fixation is not always of *definite* ideas, judgments, or suppositions. In certain cases there is rather an insistent tendency to special *kinds* of combinations of ideas and judgments. This is exemplified in what is called metaphysical mania †. "Why am I sitting here?" says one of EMMINGHAUS's ‡ patients. "Why are people walking about? What does this chair signify? Why is that person just that height, and not as tall as the room? Why is that thing here and not somewhere else? Why is the sun what it is? Why are there not two suns and two moons? Where did the stars come from? How did this worm come to be? How did worms come to exist at all? How did language arise? Why have Sunday, Monday, Tuesday, those names and not different names?"

The same sort of insistent disposition to specific intellectual activities is further illustrated by *calculating mania* and *arithmomania* §.

The latter disorder manifested itself at a later date in that patient of MAGNAN'S who suffered from onomatomania. "He counted everything on the table. At every meal he made a list of the number of mouthfuls he ate of bread and meat, and the number of teaspoonfuls of wine or water or milk that he drank. He counted the number of drops of milk that would fill a teaspoon, and the number of spoonfuls that would fill a cup. He did not know why he counted; it was ridiculous, and yet he had to."

* *Leçons cliniques sur les Maladies Mentales*, 2nd ed. pp. 177 ff.
† *Grübelsucht.—Tr.* ‡ *Op. cit.* p. 186.
§ *Rechen- und Zählsucht.—Tr.*

Those who suffer from a morbid tendency to calculation are led off into long computations by any number they happen to come across. They have to square it or raise it to the third power, or try to find its square root, and so on.

There still remains the third of the questions which we propounded about imperative ideas. We have discovered the cause of fixation and what is fixed. We have now to discuss a consequence of fixation.

You will remember that WESTPHAL regards consciousness of morbidity as one of the principal marks of this disorder: the patient looks on the idea as foreign to himself, and "confronts it with his sane consciousness." On the other hand, French writers do not regard this characteristic as essential. Now FRIEDMANN * has recently tried to show that consciousness of morbidity vanishes when the disorder reaches its acme. *The idea, he says, is then believed; its coercive character gives rise to a judgment of reality.* And he thinks that we have in this fact a proof of the correctness of the associationist doctrine that judgment is merely a strong association of ideas.

In support of his assertion that insistent ideas may be accepted as really valid, he describes the following admirable case. The patient was a woman, 27 years of age. "Slightly hysterical as a girl. Uncommon musical gifts. Rather eccentric characters among her relatives, but no mental disease. Intelligence mediocre. Most happily married three years ago. Second pregnancy began four months ago . . . slight depression, and considerable nervousness. The idea suddenly occurred to her at a ball that her husband was unfaithful and had a liaison with a friend and benefactress of hers with whom he had been dancing. Violent excitement in consequence, and scenes on the way home. Thenceforward vehement recriminations almost every day; and often at night she would wake up her husband, tired out with his work, to nag at him. The home became hell; their married life was spoiled. She grossly insulted the other lady. Yet there were times when the idea came upon her and she felt the need of having it refuted, was glad to listen to reason, wept and wailed over her own wickedness. But in moments of exacerbation she snappishly rejected all arguments: 'She didn't believe a word, she wasn't such a fool as to be humbugged like that.' Ideas and scenes of both kinds occurred almost every day. Finally her husband

* *Op. cit.*

took her away from that house, and as soon as she lost sight of the other lady (who lived opposite) she became, and still remains, affectionate and reasonable, without a trace of jealousy."

Here we see an imperative idea—of a liaison between the patient's husband and the other lady,—turning into a judgment of reality when it is very strong, whereas it is not believed to be valid when it is less intense. So the judgment of reality depends on the strength of the coerciveness with which the idea obtrudes itself. And similarly in many other cases we may observe that as the coercion becomes stronger a judgment of reality grows out of a supposition compulsorily fixed, which was not believed at first. The question is how that comes to pass.

In the case just quoted an emotion is present which, in view of our discussion last time, we are bound to regard as the cause of the fixation of the patient's idea that her husband is unfaithful. The emotion is plainly jealousy wedded to anxiety. We will hold to this fact for the present, leaving the explanation until we come to speak of insane delusions, when concrete cases will show us how emotional factors manage to influence or give rise to judgment.

All I will do at present is to refute a conclusion which, as I mentioned, FRIEDMANN tries to derive from this fact he has discovered. It does not follow, as he supposes, that the judgment of reality rests on nothing more than an exceptionally strong association of certain ideas. It does not follow even if we grant, for the sake of argument, that the coercive character of imperative ideas depends on abnormal intensity of their correlates, and that (as we allow) when the coercion is at its acme, or, in FRIEDMANN'S language, when the intensity of the correlated physiological processes is at its highest, the ideas are believed. To take only one point, FRIEDMANN would need to eliminate the possibility that the increased intensity may affect the course of reproduction of ideas in such a way as to prevent the facts which would govern a normal judgment from receiving due consideration. And the investigation of insane delusions will provide us with concrete instances, showing that the judgment of reality is actually conditioned by such a modification of the processes of reproduction, as well as by other factors of an entirely different kind.

Insane notions or *insane delusions* are delusions of judgment which cannot be corrected, although a normal intelligence easily

recognises their fallaciousness. For our purpose we may divide them into two classes, *according as their genesis is or is not accompanied by derangement of the function of judgment.*

The clearest examples of insane delusions with judgment intact occur in *Paranoia*, and I shall begin with them. The meaning of Paranoia will become evident as we proceed.

In paranoia then, as I said, the faculty of judgment is obviously intact. But unfortunately this is not generally recognised. Even psychiatrists of repute—like HITZIG * and KRAEPELIN—think that the absurdity of paranoiac delusions proves them to be partially due to imbecility or deranged judgment. Against this I am bound to insist that the absence of any trace of imbecility in the early stages of paranoia is a simple *fact.* Whether it develops in later stages is a question which (as I would have you clearly understand) I do not attempt to answer here, since it has no interest for us. What does concern us is the question whether imbecility is a necessary condition of all paranoiac delusions, and I reply emphatically that it is not. Of course we must be careful when appraising the power of judgment of insane persons not to be misled by judgments which they formed previously and now merely reproduce. But even eliminating that source of error we cannot help recognising in many paranoiac patients a power of judgment far above the average in matters unrelated to their delusions, whilst their delusions are so extravagant that their absurdity would at once be gauged by persons of less than average intelligence.

I need not tell you that in strict logic the view held by writers like HITZIG and KRAEPELIN would be satisfactorily refuted by a single instance in which it could be indisputably shown that the faculty of judgment is intact or, better still, is above the average, despite the presence of persistent delusions which *ex hypothesi* would be recognised as such by any average intelligence. As a matter of fact, however, my conviction that weakness of judgment is not the cause of these delusions is the result of examining a very considerable number of cases. Nor is this a new discovery. Indeed it is quite a common thing to see patients of mediocre intelligence making fun of the delusions of paranoiac persons far more intelligent than they.

Thus there emerges the interesting problem *how extravagant delusions manage to develop when the power of judgment is intact,* and we shall find the investigation of the problem fruitful of

* *Über den Querulantenwahnsinn.*

results for normal psychology. I will begin with a concrete case to illustrate the nature of insane delusions as found in the majority of cases of paranoia.

"Ludwig R., 32 years of age, an architect. Abilities fair, diligent, and conscientious, but has always been rather odd and retiring, and very sensitive. Has been away from home in different situations since he was 17. During the last four years it has been noticeable that in spite of his indisputable professional aptitude he has kept on changing situations, and has even been dismissed against his desire. He visited his home three years ago and seemed altered—quarrelsome, discontented, and pretentious, but he did not exhibit any eccentric notions. Quite recently he was discharged after a few months, got a new billet, but soon came away again, and went home. There he scented poison and treachery on all sides, and, though good-tempered enough at bottom, went on in a frenzied way that greatly alarmed his parents. He is a rather thin, pale creature, has lost many pounds in weight, and with some trouble he gave the following information about himself. For five or six years he has been extremely nervous; he pleads guilty to onanism without much attempt at concealment, and declares it natural in view of his bashfulness before women. The usual consequences have long troubled him, weakness and dull pain in the spine, paræsthesias and lack of endurance in the legs, chronic costiveness. He also suffers from headaches, weakness of memory, and sleeplessness; a sense of fullness in the stomach, and inability to take various kinds of food are evidence of nervous dyspepsia. In general his life has always been extremely quiet and retiring. The first time he noticed anything odd was four or five years ago. The workmen were refractory and disobedient with him more than with any one else; his chiefs and his fellows played malicious tricks upon him—removed his drawings, for instance, and hid them away. He has slowly convinced himself by numerous tests in little things that he is no longer liked. About three years ago he met a girl of good family in the street—he must not mention her name—and saw from the way she looked at him that she was affectionately inclined towards him. He used to try to meet her in the street, and, though he has never exchanged a word with her orally or in writing, he was convinced that they quite understood each other, though they could not be married at present on account of his position—a circumstance that merely made his situation more intolerable than ever. His friends, he said, had

teased and spited him and embittered his life. In the end he could contain himself no longer, quarrelled violently, and had to leave. Even before this he had managed to connect his bodily complaints with these imaginary circumstances: his food tasted differently, it did not agree with him, he grew thin, his body was losing strength and force. He had never heard voices, and in general he had to his sorrow never been able to find any clear evidence of the conspiracy against him, for his enemies were too shrewd to compromise themselves, and preferred working with success behind the scenes.

"He was glad to leave the town in hopes of finding peace and tranquillity elsewhere. He did not desire to marry the girl, and merely wanted to pursue his profession quietly in his modest circumstances. But it was plain that his enemies had anticipated him by writing letters to his injury. Wherever he went he found the same machinations on the part of his fellows, the same disobedience from the workmen, and his physical debility increased. No wonder his blood boiled and he raised bitter complaints, and once even uttered threats. His chiefs invariably sided against him, and so he had to leave one situation after another, though he always did honest hard work and never molested anybody." *

The principal feature about this patient is that he suffers from *delusions of persecution and reference.* He thinks there is a conspiracy against him, his fellows play malicious tricks on him, his subordinates are refractory. He refers the girl's glance to himself. In the further development of such cases we generally find *delusions of grandeur* joining the other delusions. We shall speak of them later, but we must first discuss the important question of the causal connexion between delusions of reference and of persecution.

WESTPHAL'S view on this subject has been accepted almost universally. According to him a paranoiac person feels "the cerebral affection which causes his malady as a vague alteration of his own personality. Just as . . . a sane person on first wearing a new uniform, let us say, or on receiving a title, feels as if the fact must be known to every stranger he meets in the street—feels as if they are all noticing the change in him, and regarding him with curiosity, admiration, or envy—so too the paranoiac thinks that every one must be struck by the change which he feels is taking place in himself. It does not take long

* From FRIEDMANN, *Über den Wahn.*

before their behaviour towards him does really seem different from what it used to be; they look at him queerly, they are always watching him, and so on. He 'projects' the alteration of his self into the world about him. Thus the specific mark of paranoiac delusions will consist in the belief that other people are taking unusual notice of one.

"Now even a sane person does not as a rule like other people to exhibit over-much curiosity about him. Far more will it be unpleasant to one in a morbid condition to have others always watching him. He will come to imagine a background of hostility behind this unusual attention, and so his delusions of being watched turn into delusions of injury or persecution."*

All this sounds very plausible, but plausibility is not proof. According to WESTPHAL delusions of persecution issue out of delusions of reference. To that I have the following objections to raise :—

(1) When examining paranoiac patients—and I have had occasion to investigate a comparatively large number of fresh cases—I have never been able to discover delusions of being watched or delusions of reference prior to delusions of persecution or injury.

(2) I have found persecution-mania in a number of cases where it was certain that delusions of reference neither were nor had been present to cause it.

I will give you one or two examples. First, a case in which the notions of persecution are of recent growth. The patient, a traveller for a large firm of merchants, had for years harboured a not unfounded mistrust of one of the confidential clerks in the business, who notoriously made spiteful attempts to disparage in the eyes of his chief any employee from whom he had reason to fear competition. Our patient's services were remarkably efficient, the sales he effected being at times the largest of all, and consequently this clerk was fond of making unfavourable comments on his way of doing business. So he had long regarded the clerk with well-founded suspicion.

Now it came about that an irregular life, combined with great exertions in his business, brought him into a poor condition of health; he lost weight and became very anæmic. The clerk's accustomed machinations began to affect him more than they used to do. First of all he developed the delusion that the head of the firm had let himself be prejudiced by the

* *Allgemeine Zeitschrift f. Psychiatrie*, Bd. 34.

clerk, though he had previously felt assured, and rightly so, that the clerk's disparaging remarks had carried no weight. In a word, an *unfounded* suspicion of his chief grew upon him. It was not long before he began to "notice" that his customers were treating him differently, and he imagined that they must have been prejudiced against him by the head of the firm. Accordingly he went home and begged his chief to say right out what complaints he had to make; he was ready to accept dismissal, etc. His master assured him that there was nothing against him, that he had full confidence in him, and was as completely contented with him as ever, and this induced him to return to his travelling. But he still "noticed" the same altered demeanour of his clients, and it also struck him that people in the street looked oddly at him. He scented mischief behind it all. Then he was taken to an asylum, and he soon began to refer his delusions and suspicions to those about him there.

Now in this case I scarcely think that any one would maintain the unfounded mistrust to be a consequence of delusions of reference. They are simply not present. The delusion of being observed is not always to be reckoned as a delusion of reference without further ado; the question is whether the latter is accompanied by suspicion. Here, at any rate, the delusions of being observed are coloured with suspicion. But they are subsequent to the delusions of persecution, which are not preceded by any trace of relating mania. On the contrary, unfounded suspicion attached itself to previous suspicion that was well-founded, as soon as the latter was complicated by a condition of irritable weakness. These are the factors which form part of our actual data, and they seem to be the causes of the baseless suspicion. The likelihood of this account is increased by the fact that unfounded suspicions may often be observed to follow when these factors have coincided, and that whenever we find them together it invariably follows. If I can succeed in showing *how* it may develop out of them, as I shall try to do in a few minutes, our hypothesis will be still further confirmed.

In a similar case a female patient who had always been very sensitive, was subjected to much excitement during lactation in consequence of the mistrust with which she had good reason to regard her maidservant. This girl was frequently guilty of falsehood and pilfering, and cheated her about the goods she bought. Her suspicion was therefore well founded, and she gave way to it the more since her husband was away from home

at that time for several weeks. In the end she made up her mind to dismiss the girl, and then there arose disputes about the amount of wages due, with more violent excitement in consequence. Now begins the first trace of ***unfounded suspicion.*** One of the clerks in her husband's office fails to greet her properly — on purpose, she says. He and the rest of them leave the passage door open—" to spite her." Her birthday comes round soon after, and the events of that day give food for fresh suspicions. Some friends of hers fail to give her their good wishes. Her mother's letter was not signed, as usual, by her brothers and sisters (Feb. 15th.) These things continue to occupy her mind during the next few days, and she keeps on repeating to her husband—" I believe they are making sport of us ; it is all out of spite." On the morning of the 22nd she " sees it all." People are certainly making sport of them, and at the bottom of it all is a friend of a certain clergyman whom she had long had hopes of marrying when she was a girl. He means to humble her into going to church again. All who are in the plot have to report to him. " That's the picture complete. I see it all now ; it is all a put-up thing."

Here there was plenty of occasion for justifiable suspicion during the period of lactation. Added to lactation is the excitement resulting from her suspicions, and then from the worry about the maid's wages. All this is bound to produce a condition of irritable weakness, and thus there comes the first delusory notion that others are trying to spite her. So she develops unfounded mistrust of her friends and relatives. Then she systematises her persecutory delusions by the explanatory hypothesis that a friend of the clergyman who had figured largely in her mental history is managing the whole business behind the scenes.

Once again we have suspicion and irritable weakness preceding the ideas of persecution. As to any influence of relating mania on the genesis of morbid suspicion, it is out of the question ; there is not a trace of it.

Let me sketch a third case in a sentence. A woman starts with justifiable suspicions concerning her husband's faithfulness to her. On this follows unfounded suspicion, first of her husband himself, and then of the other members of her household. I cannot give any further details at present.

I venture to say then that the hypothesis according to which delusions of injury and persecution grow out of delusions of reference falls to the ground. But do not suppose that there is therefore

never any causal connexion between them. ***Delusions of reference are certainly not to be regarded as causing ideas of persecution, but sometimes they follow on such ideas and are conditioned by them.*** This sequence may be noticed in a great number of paranoiacs, as, for instance, at a later date in that patient of mine who fell ill during lactation. Nor is it difficult to explain. Ideas of persecution are a kind of delusions of reference, though they have such a well-defined character that we give them a special name. When they have occupied a patient's mind for a considerable time he gets into the habit of referring everything he comes across to himself, and this habit, which is the result of ideas of persecution, sometimes finds separate expression.

To return to another point, we found that in paranoia ideas of persecution often follow on repeated suspicions which are in the first place well founded. I propose to carry the analysis of this development up to a certain point, and then to consider what other modes of genesis these delusions may have in this disorder. I shall carry the analysis of these modes up to the same point as that of the first mode, and then treat the last and most important step separately.

Ill-founded suspicion, as we saw, may arise out of frequent justifiable suspicions when the subject is in a condition of irritable weakness. In such a condition affective excitement gets a stronger hold of one, attains a higher intensity, and persists longer, and the after-tremor also lasts longer. Consequently an emotion of suspicion grows into a mood of suspicion, more profound than normally; ***the emotion, frequently repeated, ends in a persistent mood.*** I shall try to explain in the next lecture how this mood manages to give rise to unfounded suspicion or delusions of persecution. I will only add now that I am not assuming the existence of the morbid mood as a natural result of frequent fits of emotion in a state of irritable weakness; it is easy enough to show the actual presence of such a mood.

But paranoiac delusions of persecution do not always develop out of previous justifiable mistrust. They often follow on some ***unhappiness*** resulting from irritable weakness and the consequent weakness of mental powers. Thus I once had a woman under my observation whose mind had been gravely affected by the fact that her parents had wasted her money. She had always been unlike the rest of her family in the depth and duration of her emotions*. The loss of her money intensified her irritable

* *Gemütserregungen.—Tr.*

weakness. Whilst in this condition she had to go into service with strangers. Her sensitiveness resulted in frequent changes of situation, and indeed she does not seem to have been very efficient, her intelligence and excellent intentions notwithstanding. These unhappy experiences embittered her against her fellows, till finally she came to look on all men as bad, and thought herself injured by everybody. Soon after that she began to notice that people she passed gazed at her in an odd and hostile manner.

Here unhappiness begets emotions of suspicion, and they pass into a morbidly mistrustful mood which produces notions of injury. You may ask why misery has precisely this result in her case; it does not always result in suspicion. Why does it not bring discouragement or self-reproach? The only answer I could offer would be wholly hypothetical, and as the question has not any special importance for our purpose, we will leave the facts as they are, noting, however, that here again, though we call persecution-mania the result of unhappiness, its proximate cause lies in the growth of a mood of morbid suspicion.

Finally there are cases in which this morbid mood seems to develop in the main spontaneously, inasmuch as the physical changes which occasion its specific organic sensations with their concomitant affective tones are spontaneously developed. It is possible that those cases in which abnormal sensations herald the beginning of the malady should be reckoned under this heading. I feel bound to express myself very cautiously, however, on this point, for unfortunately we know nothing about the bodily changes involved in the emotion of mistrust, which is very surprising in view of the stage of development to which experimental psychology has attained.

This much is certain, anyhow, that *ideas of persecution in paranoia always have for their proximate cause a mood of morbid suspicion*, which starts in different ways in different cases. We shall have next to enter on the cardinal question *how an affective phenomenon, a mood of suspicion, manages to beget the insane judgments involved in ideas of persecution, notwithstanding that intelligence in general remains intact.*

TWENTIETH LECTURE

How does an affective anomaly manage to beget insane delusions?—MEYNERT's view—My own theory—Delusions in erotomania and hypochondria.

WE saw last time that ideas of persecution in paranoia are the result of a mood of morbid suspicion, and we have now to ask how an affective anomaly manages to beget such delusions.

Let me first explain in a few words how affective factors generally are supposed to influence judgment. MEYNERT states his view of the matter in the course of his remarks upon megalomania with morbid gaiety.

"Megalomania, or its expression, arises from a connexion between a maniacal feeling of happiness and an analogical argument based on the physiological delusion of popular prejudice. It is popularly thought that because a man has a prominent position he must be happy—a most fallacious argument, at least as far as his permanent mood goes. Riches, power, fame, are supposed to bring happiness (*Euphoria*), and so firmly rooted are these delusive associations between external goods and mental moods that they guide the argumentation even of patients whose mood is one of *abnormal* gaiety. The only difference is that he *reverses* the inference and argues from his mood to his position. Feeling extremely happy, he associates the expression of happiness to the feeling, which, he concludes, is due to his wealth, or power, or fame, or to all these together." Or, more shortly, megalomania depends on "an analogical argument from euphoria on the model of the popular error that a man of wealth, position or fame is bathed in feelings of pleasure. In the morbid mind the fallacy passes from the feeling of pleasure to a condition of personality, of which pleasure is supposed to be an attribute."*

SANDBERG† takes a similar view of the connexion between

* *Psychiatrie*, pp. 3, 222.

† *Allgemeine Zeitschrift f. Psychiatrie*, Bd. 52.

"mistrust" and persecution mania. "MEYNERT'S general observation," he says, referring to an earlier publication of that writer's, "that a large number of delusions are due to patients deducing external facts from their own mood, and not mood from external conditions as sane men do, fits our case too. A sane person grows suspicious if he is watched or persecuted, but a paranoiac argues the other way round from his suspicion to the conclusion that he is watched or persecuted."

My objection to this view of SANDBERG'S is that, as a matter of fact, we never find any such process of inference in paranoiac persons. If they did argue like that, we should surely be able to ascertain the fact when examining intelligent patients. And this path will not lead us to an explanation of the genesis of ideas of persecution. We shall have to inquire by and by whether this assumption of an inferential process has any value in the case of other kinds of insane delusions, more particularly in cases of melancholia, where the state of affairs is possibly somewhat different; but as far as the genesis of persecutory delusions in paranoia is concerned we cannot admit that an inference of the kind supposed enters in at all.

I said that if an inference were present it would be discoverable in the course of examination. There is of course a possible reply that the inference may be unconscious. But our answer to that is that on general psychological grounds we reject the assumption of unconscious inferential processes.

In attempting to ascertain the genesis of ideas of persecution we have a very large mass of data at our disposal. We have first to learn where to look. The judgment-function itself being intact, we had better inquire whether any derangement is noticeable in those mental processes which are preconditions of judgment, and, if so, whether it is such as might result from the affective anomaly which we signalised. I will begin by anticipating in a couple of sentences the conclusion that we shall reach. We do find derangements of the kind required alike in the perceptual and in the ideational processes of these patients. There is perceptual bias and falsification, and there is bias in reproduction and fixation of ideas, and falsification of the ideas themselves. Furthermore, these anomalies can be shown to result from the affective anomaly, and they influence judgment by tampering with its data.

We shall find, however, that these factors by themselves are not enough to explain the whole of the facts. They fail entirely

to explain the incorrigible character of the delusions, and the attempt to determine the origin of this character will contribute considerably to our knowledge of the judgment-function itself.

I will take first the derangements of reproduction and fixation of ideas, partly because they are the most important and partly because they are prior to one of the derangements of perceptual process. We notice in these patients, as I said, that there is *a bias towards the reproduction and fixation of certain ideas rather than others, and that the ideas reproduced undergo falsification.*

When that architect of whom I spoke thought that the workmen disobeyed him more often than his fellows, it is clear that the course of reproduction was biased, and instances of disobedience were recalled, whilst instances of ready obedience dropped out of mind. Similarly with the woman who fell ill during lactation, and thought that her friends had a malicious purpose in not sending her their good wishes on her birthday. Other possible explanations practically did not enter her head; that is, the reproduction of ideas was biased as between the different explanations possible. So again with the commercial traveller whose delusions were largely due to well-founded suspicion of a clerk. He thought himself justified in inferring from a few isolated actions that his chief had become prejudiced against him, whereas his services were really much valued. Among other things he supposed that a circular which was sent to all the travellers for the firm (about sixty in number), requesting them to keep their expenses within the lowest possible limits, was specially directed against himself. The explanations his chief gave of this and other actions did not succeed in reassuring him, though they were very plausible and he was an intelligent man, and knew himself to have been treated in the past with confidence and respect. (This raises a further point, to which I shall return shortly.) He stated that of all the other possible (and natural) ways of explaining the various facts, none had entered his mind, except in a very fleeting manner, whilst the interpretations he selected occupied him the whole day long—clear evidence that the process of fixation, as well as that of reproduction, was biased. As to falsification of the ideas that are reproduced, we met with that, as you will recollect, in the case of a paranoiac patient of OETIKER'S, when we were discussing errors of memory.

Now it is possible to show that all these abnormalities of ideation result from the affective anomaly. It biases the course of reproduction because affective states determine the train of

ideas not only quantitatively, by increasing or retarding its speed, but qualitatively as well. In other words, they determine, or help to determine, the content of the ideas reproduced. Among other things they have a direct influence on the course of ideation, not mediated by the ideas which give them origin. The proof of this statement, which we have to borrow from the doctrine of feeling, I must leave over till I come to the pathology of affective states; but it is a fact that the effect of feelings varies with their specific character, the tendency being towards the reproduction of ideas or ideal complexes which have previously gone with a similar or identical affective state. Thus a mood of morbid suspicion is sure to tend towards reproduction of ideas which are themselves accompanied by feelings of a suspicious or unpleasant nature.

Affective conditions lead to bias in fixation because ideas of a similar affective tone are most readily fixed. Here again we have to borrow from the doctrine of feeling, and must leave over for the present the proof of the statement that affective conditions can fix ideas. The reason why a given affective attitude biases fixation in favour of ideas that involve identical or similar states of feeling is that such ideas find in that affective attitude stronger associational attachments than ideas of a different affective character.

The affective anomaly, the morbid mood of suspicion, thus giving a definite bias to the processes of reproducing and fixing ideas or ideal complexes, so that the presentation of the facts harmonizes with the prevailing mood, it is evident that the resulting judgment must be false, and in such a way that the idea of the facts as accepted in the judgment will be accompanied by an emotion of suspicion, although the actual facts give no ground for suspicion.

Falsification of ideal representations scarcely ever occurs, in my opinion, until the delusions of persecution have already been developed, and it comes about in much the same way as falsification of percepts, to which I shall confine my remarks.

The modification of perception is also a result of the affective anomaly and influences judgment in the same direction as do the abnormalities of ideation. As is clear from what I have said, it is not an indispensable condition of these delusions, but an additional source of them, of less importance than, and in part secondary to, the other. Perception is biased and falsified; biased, because features of the object which do not possess a certain

affective character fail to find entry into the fixation-point of consciousness; and falsified, because an idea which is forced upon consciousness by the affective anomaly fuses with the sensory data in the process of assimilation.

I will take *falsification* first. It is a familiar and frequent characteristic of these cases that patients think people are watching them with hostile gaze the moment they appear in public. Their abnormally suspicious mood tends through its associations to reproduce in them the idea of hostile actions. Given, then, any particular attitude towards them on the part of other people, their mood tends to arouse ideas which represent this attitude as a hostile manifestation, like the supposed hostile glances that I mentioned. Delusions of persecution will have the same tendency, and will strengthen the influence of the morbid mood, supposing that they are present in a general form before the falsification takes place. As far as my memory serves they do always precede falsification; and if that is so, it seems to indicate that false assimilation is not so easily brought about as biased reproduction and fixation, the reason probably being that the process of fusion involved cannot take place unless the idea of hostile behaviour arises with great ease and rapidity.

This is how perception is falsified. But sometimes it is biased as well, because, as I said, the mood of suspicion gives those features of the object that excite suspicion a better chance of reaching the fixation-point. In the course of his malady our commercial traveller came to believe that his customers were no longer actuated by the kindly feelings towards him that long acquaintance had fostered, but were adopting a hostile attitude. Wrong assimilation perverted totally indifferent features of their behaviour into hostility, whilst he simply failed to notice the traits of friendliness that are natural in acquaintances of fifteen years standing. After what we have said of the similar case of biased fixation of ideas, I need scarcely explain in detail how the morbid mood of suspicion manages to push into the fixation-point just those features which resemble it in affective tone.

I have now shown you how the affective anomaly results in tampering with the data for judgment which are provided by perception and ideation. It is clear enough that the judgments formed must be influenced in consequence. But it is not yet clear why they are *incorrigible*. You may call their attention to the data which have been disregarded, and yet these patients

do not correct their judgments. Take the case of that traveller again. Though the head of the firm gave him the necessary data for another interpretation, he could not be moved from his view of the circular about expenditure, which he referred to himself in particular; he held fast to his suspicious explanation, which must, therefore, have been accompanied by an abnormally intense consciousness of its validity.

What is the reason of this consciousness of its validity? It is so strong that nothing can account for it except the abnormal intensity of the affective conditions. The combination of ideas which constitutes the interpretation chosen is united to an affective state of identical character with the morbid mood itself. Consequently, once this combination has occurred, the idea of the facts to be interpreted must lead, in view of the patient's existing mood, to this interpretation's forcing itself forward to the exclusion of any other, and the result of this is an abnormally strong consciousness of its validity. Other pathological data will enable us by and by to see more precisely what is meant by this process which I have called " forcing itself forward."

That is my theory of the genesis of delusions in paranoia. I will now say a word or two about another view recently formulated by WERNICKE,* which is at the same time destined in its author's eyes to make possible a profounder comprehension of all mental diseases. WERNICKE appends his explanation to his account of a patient who developed grotesque delusions whilst his general intelligence was intact. How comes it, he asks, " that there can coexist in one mind such a chaos of false ideas and of judgments in contradiction with reality and with one another, whilst his power of formal reasoning is intact, his general intelligence apparently normal, and his view of his situation correct in the main? Well, gentlemen, considering the facts, which are beyond dispute, and considering the genesis of the patient's present condition, we cannot be in doubt about our answer. It was the acute mental malady that loosened the firmly articulated system of associations. We may give this process of disintegration the appropriate name of Sejunction, and we cannot fail to see in it a defect, a breach of continuity, which must correspond to the loss of certain agencies of association. For in the last resort it can only be through the agency of association that different ideas and ideal complexes are not

* *Grundriss der Psychiatrie.*

merely coexistent in the brain, but are synthesised into larger systems, and finally into the unity of the self. The very fact that the patient is unconscious of the contradiction between his different false ideas indicates that the synthesis of all higher systems into a unity, the self, has ceased. The man consists in a sense of a number of different personalities at once, and we may boldly designate his condition the break-up of individuality."

But WERNICKE attributes the breach of continuity, "which must correspond to the loss of certain agencies of association," to proliferation of the nerve parenchyma. It amazes me that he has not seen how improbable this hypothesis is as an explanation of the loss of precisely those associations which he has to assume are lost in any concrete case. But apart from that there is no occasion to assume a "breach of continuity" at all, as is evident from my account of the matter. And with the best of goodwill I cannot agree that all cases of these delusions can properly be called cases of disintegration of individuality.

Ideas of persecution form only one of the classes of primary insane delusions occurring in paranoia, as I indicated at the beginning of our discussion of them. In other words there are various types of paranoia. Nearest to the persecutory type come the delusions of the querulous. It has indeed been said, and rightly, that what is called querulous insanity is not always a form of paranoia, but may rest on a basis of imbecility. We will confine ourselves at present, however, to the paranoiac kind. I need not cite examples. It differs from the persecutory mania that we have been considering partly in the much greater activity to which the delusions give rise, and partly in the fact that the delusions may persist for many years without affecting the general mental powers to any appreciable extent, or at any rate without having anything like the deleterious influence that simple persecutory mania has when it persists for a length of time. We may probably regard these two marks of difference as causally connected. *When the emotions have frequent opportunities of motor discharge, they are less injurious to the mental powers than when such discharge is rare.* BREUER and FREUD* maintain that they have discovered a similar causal connexion in the emotions of hysterical persons, and their method of cure, which they say has been successful, is to try and discover mental trau-

* *Studien über Hysterie*, passim.

mata by means of hypnotism, and then to find a vent for the pent-up emotions and drain them off.

Less closely connected with the foregoing delusions are those that occur in certain cases of *Erotomania*. You will find that the text-books of psychiatry mostly speak as if erotomania were always a form of megalomania, secondary to delusions of persecution. We shall return to megalomania later on, but one must admit the existence of a primary type of erotomania *growing out of an erotic mood, normal or abnormal, and then superinducing a complex mood of morbid suspicion and erotic feelings.* WERNICKE reports an admirable case of this kind.*

" The patient is an unmarried woman, about 40 years of age, who was a mistress in a high school for girls. Very capable and keen at her work, though perhaps a little too hard-working. She thought she noticed that one of her colleagues, a bachelor, with whom she had long been on friendly terms, was regarding her in a more serious light. It struck her that when teaching his class he often stood at a window from which he could see into her class-room, that during the intervals he took to stopping on a landing which she and her pupils had to pass on the way to their room, and that he saluted her with special respect. These observations were soon confirmed by all sorts of casual meetings, and affected her with profound emotion. She spent hours and nights in internal conflict as to the attitude she ought to adopt, and above all as to the best means of escaping attention and preventing her pupils and colleagues from noticing anything. Then, feeling unable to maintain her composure any longer, she began to avoid these meetings, and went so far as to cut him on purpose. About this time she began to notice that her pupils seemed to know about the affair; she caught remarks referring to it, and perhaps she had occasional hallucinations, for she heard the words, ' How worried he looks.' Other mistresses, who used to keep aloof from her, began to visit her more often, and it was remarkable how often they spoke of the young man. On the other hand her friends became more distant and seemed to disapprove of the affair. The Principal himself began to meddle, talking to the young man during the intervals and keeping him away from his usual post on the landing, further from her. After a time he left the school to study abroad. When he paid his farewell visit he was in a state of extreme incoherence, kept changing colour, and above all gave her a long look that

* *Op. cit.*

showed he was aware of her feelings and reciprocated them. When he had gone she noticed that some of the mistresses met her with sneers and displayed malicious pleasure at her trouble, whilst others were sympathetic and considerate. The matter was certainly common knowledge, and every mention of him contained some allusion to it. The Principal must have talked about it at a meeting of staff, as she could tell from the general embarrassment that came on every one when she entered.

"Two years passed. She heard nothing from the master directly, and began to wonder whether he was a man of honour. She had indeed to admit that her attitude must have tended to check his advances, but surely, if he were an upright man, he could not have failed to understand the reason for it. Full of the sacrifice she had made to school discipline in her self-restraint, she went in the end to the Principal, whose heartless interference she never forgot, and made a great scene, with the result that she was given six months leave and advised to go into a nursing-home. This she did, and the director there diagnosed her case as megalomania and persecutory mania, and declared that she was an incurable paranoiac. When I saw her first, about three years after the beginning of her malady, she was living with friends, making herself useful by teaching the children. As there was nothing remarkable in her behaviour or expressions, it naturally excited surprise that a doctor of experience had declared her incurably deranged, and she was induced to consult me. I found her to be a cultivated and refined lady. It was quite clear to her that she would have been within her rights in behaving towards the young man precisely as she chose, but her feeling of duty towards her school left her no choice, and so she had sacrificed her rights to duty. She had no doubt that he did at the time intend to make her an offer of marriage, though she was bound to admit that he had never said a word that might not be interpreted in a perfectly indifferent sense. That he had not made an open declaration—and his failure to do so seemed to her a little unfair—was due mainly to the intrigues and heartless interference of the Principal and the staff generally. She paid not the slightest credence to my assurances that all her supposed observations were explicable as the result of morbid preconceptions and rested on self-deception. Yet she agreed to go into an asylum voluntarily, though she stayed there only a few weeks. Now, two years later, I

learn that she has resumed her profession in a private school, and has proved perfectly capable of doing her work; but she has fallen out with all her relatives, and holds them partly responsible for the loss of her life's happiness."

The earliest delusions of judgment in this case are of a kind which makes it difficult to decide whether the erotic feelings out of which they grew should be called morbid or not. But we need not try to settle that question, since it does not make any difference to our view of the connexion between the delusions and their affective conditions. The erotic feelings give rise to a mood of abnormal suspicion, and, even if they are not morbid to start with, they gradually assume a morbid character owing to the weakening effect of violent excitement. But how exactly does the patient's abnormal suspicion originate? The thought of her position makes her afraid lest those who witness what she regards as expressions of love on the part of the young master may notice the relations subsisting between them. She reflects that if this happens it will be to her disadvantage. Her fear of being noticed becomes a fear of being injured by those about her. Thus an emotion of suspicion grows upon her and subsequently develops into a morbid mood, as excitement and internal conflicts reduce her to a state of irritable weakness.

So now we have morbid suspicion and morbid erotic feelings, and the resulting delusions are partly due to the one, partly to the other, partly also to both at once. The morbid erotic mood gives rise to the insane conviction that on saying farewell the master had looked at her with a long gaze, which indicated that her affection was reciprocated, and probably also to her belief that he was incoherent and the like. Her morbid suspiciousness is the cause of her persecutory delusions that the headmaster and the rest of the staff were intriguing against her, and that her relatives were to blame for her unhappiness. Other of her delusions are due to the co-operation of these affective anomalies. *Mutatis mutandis*, what I said about the origination of ideas of injury and persecution by abnormal suspicion holds good also of the genesis of erotic delusions out of a morbid erotic mood.

A few words about a similar case that came under my own observation. The patient was an unmarried woman, nearer 50 than 40. She had long served as sempstress in the house of a rich bookseller. Her master was a genial old man, and used occasionally to speak to her in a kindly way. After a time she

began to misinterpret his attitude. Later still she could see it in his look that he loved her. She was much surprised that this "rich gentleman should love a humble girl," and thought that as the other servants could not fail to notice it they must be jealous of her. To their intrigues she ascribed his failure to declare himself; they grudged her her good fortune. After a time she found herself unable any longer to endure being their butt and determined to speak her mind to her master, with the result that she was put into the asylum. She soon became quieter and was let out as an experiment. Meanwhile the object of her affections had died, but although she saw the stone above his tomb with his name engraved on it, she refused to believe in his death and continued to pester his relatives.

When she was brought back to the asylum her condition was in general the same as before. A dose of bromides would free her for several hours from her delusions that the bookseller was still alive and about to marry her, whilst opium immediately reinstated them. The effect of these drugs is to be explained by their influence upon her mood, but they had no effect upon delusions of longer standing.

The last primary paranoiac delusions that I shall mention are those which grow from a morbid mood of *hypochondriacal* anxiety. Here is a case that came under my own observation. The patient was a woman of distinctly more than average intelligence, though her delusions were of the most extravagant character. I had occasion to see her daily for a period of eighteen months. My presentment of her case will enable you to detect the point of difference between the genesis of these delusions and that of paranoiac ideas of persecution. You will find that the difference is quantitative.

The patient is an officer's wife, 32 years of age, with hereditary taint on both sides; her father had several attacks of melancholia, some of his brothers and sisters were also mentally affected, whilst her mother is extremely hysterical.

At school she had been very quick, but even then she displayed a morbid restlessness which grew with the years. She was in the highest degree emulous. No one could rival her attainments, physical or mental. She ruthlessly belittled any of her own sex who might be compared with her. As a mother she showed morbid anxiety about her children's health. She lived during several years in a district where malaria is rife, and the least indisposition made her fear they had got malaria. When her

husband was moved to another locality her morbid anxiety about their health was replaced by a similar anxiety about her own. This turn of her feelings was encouraged by her over-exertions whilst moving house, which reduced her to a state of neurasthenic debility with abnormal sensations in the brain. A doctor told her she was suffering from anæmia, and thereupon she became apprehensive that anæmia might impoverish the blood-supply to her brain and the brain-substance might be injured in consequence.

This apprehension soon changed its form. She had repeated sensations of coldness in her head, and thought she could detect a concurrent weakening of her mental powers; and under the influence of a vague idea of what is called softening of the brain she became afraid that her brain might "disappear" or "dissolve." This fear infested her for months, and medical treatment did her more harm than good: she knew more than her doctor, and was certain beforehand that all his prescriptions were totally unsuitable. On the approach of her birthday she told herself that this was the last birthday she would live to see. During the eve of it her malady took a new form. She noticed "a complete change" in her respiration; "it had become irregular and awfully deep and slow." Slight shivers ran through her from time to time, "but only like an intimation of more to come." Her heart-beat, which she listened to with anxiety, grew weak, so that her body "seemed at times to be without a heart." She describes what happened after that in the following words: "All of a sudden my whole head went cold. For the first time I felt the whole inner expanse of my head—the mass within parted like mist ? ? ? separating, and all at once I understood. Oh God, that is the brain-mass itself! Dr. O. was right, just a year ago there was really no blood in my brain. . . . Still my heart had not stopped quite dead, I had a little spirit left, a little nervous activity, perhaps enough to hold out till November 12th (the next day), then would come the nerve-shock, the extinction of soul and mind, and the death of the body. The same morning my illness took a form quite different from anything else in my life; where it began the month before to become . . . merely pale, there appeared a pitch-black drop in a slimy substance. My blood was used up. My heart was not sending any to my brain. I was to die on November 11-12, 1896, from absolute debility, owing to lack of blood and decomposition of blood—all the consequence of feelings too profound, of loving cares that

affected my heart's action, sapped away my life, and compelled me to think and care only for myself."

You will have noticed that falsification of perception, false assimilation, plays a much more important part in this case of hypochondriacal paranoia than it did in our paranoiac cases of persecution. The insane notion that her brain has gone is due to her *perceiving* its dissolution. Now this perception was conditioned by the apprehension that her brain might dissolve, for though this apprehension was nothing new it had come upon her in full force on the night before her birthday, when she noticed what seemed to her a dangerous change in her respiration, and grew afraid that she might die at any moment. Then all of a sudden her attention was attracted to a change in her brain—her whole head went cold; and then the idea that her brain was dissolving was forced forward, and, fusing with the sensations already present, gave her the perception of the process of dissolution.

Here, you see, falsification of the assimilation-process in consequence of an affective abnormality plays the chief part, whereas it took a subordinate part in the genesis of paranoiac delusions of persecution. In our present case false assimilation occurs more readily because the assimilating idea is already present or only just below the threshold of consciousness, and has not first to be revived in a concrete form by sense-impressions and abnormal affective conditions.

TWENTY-FIRST LECTURE

Insane delusions (continued); secondary, in Paranoia; in Mania and Melancholia; and with derangement of the judgment-function in General Paralysis—Conditions of the consciousness of real validity; the nature of Thought as shown by pathological cases.

THE significance for normal psychology of the relations between the delusions we have been discussing and their conditions is manifest. *We have learned from them how affective conditions may influence judgment.* No doubt this influence asserts itself in normal life also times without number, but the connexion between condition and result is not so patent as in these grotesque delusions. If you have an examination coming on and try to estimate your chances of a certain class, you will fancy them much slighter in a moment of depression than in a mood of indifferent character or in one of exaltation. When a LEIBNIZ regards his proofs of God as cogent, his assurance is wholly due to the influence of affective factors upon his judgment. If you attend to the point, you will soon find any number of instances in your own judgments and in those of your friends.

But there is another lesson to be derived from these cases, to which I shall return shortly. They give us a starting-point for investigating the conditions governing the consciousness of the real validity of the contents of certain acts of thought.

As yet we have discussed only those paranoiac delusions which are commonly called primary, because they do not depend on other delusions or on hallucinations. In none of the cases, except perhaps in WERNICKE'S case of erotomania, had hallucinations occurred prior to the delusions, and even in WERNICKE'S case the isolated hallucinations which may perhaps have occurred had no influence on the development of the delusions.

We pass on now to the secondary type, beginning with delusions following upon hallucinations. The patient hears voices, yet he often fails to see any one to whom he can refer them.

Accordingly he assumes in his mad way that the walls are hollow, that the voice comes through a telephone, or the like. These are called *explanatory delusions*. Or again he has visual hallucinations. Forms appear and disapppear in a very different way from the forms of external objects really present to his senses. Yet he cannot help regarding them as dependent on real external events. So he hits on a way out of the difficulty by supposing that some one is working mirrors and so conjuring forms up before him. Many patients hear voices insulting them, and *are thereby led to form ideas of persecution*, which you must carefully distinguish from primary persecutory ideas. Yet at first sight the difference might seem greater than it really is. For we must remember that the content of the hallucinations is also dependent on the patient's general mood. Suppositions which have been made in consonance with a prevailing mood often seem to the subject to receive verification from just such hallucinations.

But delusions may also be *secondary to other delusions*, as is the case with " retrospective explanatory insanity " and with secondary *ideas of grandeur* in paranoia. Ideas of grandeur generally follow on ideas of persecution at some stage of paranoia, in consequence probably of the abnormal exaltation of self-feeling which results from the protracted conflict with persecutors. The name of retrospective explanatory insanity is given to cases in which previous experiences or other subjectively assured data are transformed so as to harmonise with an incompatible delusion. This generally happens, for instance, when a patient thinks he is a duke. His admittedly *bourgeois* extraction is incompatible with this delusion. The notion, therefore, grows upon him that his parents, as he has supposed them to be, are really only foster-parents. I will borrow an excellent instance of the kind from WERNICKE*.

The patient was a Doctor of Philosophy. The theory of suggestion and hypnotism provided the basis of his explanatory delusions. Eight years earlier he had been insane for a time, but had so far recovered that for several years he had fully recognised the abnormality of the symptoms of his acute derangement. When WERNICKE introduced him to his students in a fresh attack of insanity, " it was remarkable that he had entirely lost this consciousness of morbidity again. He now averred that even the elementary phenomena of his first illness (auditory

* *Op. cit.* II, p. 136.

hallucinations chiefly) were not the result of disease, but of hypnotic suggestion by some of his persecutors. He recollected quite well that he had regarded them as expressions of disease for some years past, but remarked truly enough that this supposed consciousness of morbidity might also be explained as the effect of suggestion."

This brings us to the end of our discussion of paranoiac delusions. Our intention was to begin with delusions which are developed without any other intellectual derangement, but I have added a few words about secondary ideas of grandeur, though they often presuppose weak-mindedness, so as not to break up our treatment of delusions as they occur in paranoia. It is time we turned to *delusions in melancholia and in mania.*

It is only when these maladies are very slight that intellect in general can be called intact. Their more acute forms represent affective conditions of an intensity which necessarily impairs the intellectual function. Indeed affective phenomena so obviously dominate conduct in both cases that they are often comprised under the single heading of affective psychoses.

Maniacal states of mind are marked by flight of ideas, motor restlessness, and abnormal mood. This last consists in morbid gaiety, but is very unstable and apt to turn into morbid anger. The delusions which occur are nearly always ideas of over-estimation of self and ideas of grandeur. I need not explain in detail how the former arise out of abnormal gaiety, but will merely refer you to what I said of the genesis of persecutory delusions. When ideas of over-estimation of self assume grotesque forms and seem to turn into ideas of grandeur they are not as a rule intended seriously. A maniacal patient of mine once informed me that she was soon to leave the asylum, and that her equipage with a coachman in livery would be at the door to carry her to her palatial villa. As a matter of fact she was poor. When I took her literally and began to discuss what she had said, she burst into loud laughter at my being so silly as to take her in earnest. Another interesting point is that *the periods of morbid anger are unfertile of delusions.*

Abnormal *melancholy* may be provoked by definite delusions, or it may occur spontaneously, definite delusions being secondary. I will give you in short an instance of each mode of origin.

A patient of mine had been through a melancholic attack several years previously and had recovered. Now she happened

to undergo the following experience, being in a state of physical weakness at the time. She gave sixpence to an artisan who begged of her. The man was arrested by a policeman, and she had to appear in the court of justice, so she said — it was probably before the police-magistrate — to give evidence as to whether he had begged for money. She stated the truth. The trial of the case excited her greatly; she disliked having to give evidence which injured the man. On her return home she began to doubt whether he did really beg for money or only for bread for his children, and arriving at the idea that it was not for money that he had asked she began to reproach herself. This notion became fixed like an imperative idea, and she kept heaping reproaches on herself till it gave rise to a mood of morbid melancholy. Now she would bewail her treatment of the artisan; she had brought misery upon him, she had borne false witness and ought to be in gaol. Then again she would have it that her whole life had been evil—she had in point of fact been a conscientious wife—she had not loved her late husband, and so on. The thought of her wickedness gave her profound *tædium vitæ*.

In contrast to that take the following case, where morbid melancholy originated spontaneously. The patient was a woman who, though coming of a tainted family, had always been right in her mind until she reached the climacteric. Without any reason she then became depressed, began to read the Bible very frequently, and bewailed the wickedness of her past life. She had lost all her sprightliness and spent her time in remorse and gloomy previsions concerning the future of her husband and son, who, as a matter of fact, occupied secure official positions. Her state of mind whilst she was on the road to recovery was for several weeks peculiarly interesting. In the morning she was always melancholy, saying that her husband and son had lost their positions, or, if her morbid humour was more intense, that she was a wicked woman. If she took a dose of opium she was not quite so certain an hour later that what she had said about her husband and son was correct. During afternoons and evenings she was free from melancholy notions, and wondered how she could think such "silly nonsense." This alternation went on daily for several weeks. Let me say once more that observations of this kind seem to me to have an important bearing on the theory of emotions.

I ought to add that when morbid melancholy is started by a definite idea, the idea does nothing more than give the cue. Were there not present beforehand a strong disposition to melancholy, the idea could not strike root so deep in the patient's mental life. *It is owing to the affective anomaly that the idea, which was previously a mere apprehension of a possible event, acquires subjectively the character of real validity.*

Morbid melancholy gives rise to melancholic delusions in just the same way that morbid suspicion gives rise to ideas of persecution, except that one might argue that an additional factor comes into play in some cases. We could not in any way agree that an inference is made in the early stages of paranoia from suspicion to persecution, but that theory does seem (*mutatis mutandis*) to fit certain cases of melancholia. A patient will sometimes say, for instance, " If I am so full of anxiety, I must be wicked." Of course that does not in itself prove that this train of thought originally led him to the melancholic delusion of his own wickedness, though it is a fact that the affective anomaly asserts itself as such in these cases with greater force than at the beginning of paranoia. And certainly there is no solid foundation for the doctrine that all melancholic delusions are the result of such inferences. On the other hand, to abandon the assumption of an inference altogether and substitute simply reproduction of the idea of " wicked conduct," as some writers do, provokes the reply that such a reproduction is a different thing from the judgment which the patient makes.

I pass on now to *delusions which involve derangement of the function of judgment itself*, selecting for fuller consideration those which occur in progressive or general paralysis of the insane—softening of the brain, as it is called. This *dementia paralytica* is of special interest psychologically, because its initial stages exhibit derangement of judgment in comparative isolation from other derangements of intellect. To give you an idea of the complex of mental symptoms present one may say in a general way that it is a disorder which, as it progresses, gradually reduces all the intellectual and affective powers practically to zero, and that comparatively quickly, within two or three years on an average. Unlike most mental disorders it is accompanied by gross changes in the brain, and these morbid anatomical changes in the brain occasion phenomena both of morbid irritability and of paralysis in different parts of the body. Significant

derangements of speech and writing occur, and abnormalities of reflex movement, affecting among others the patellar and pupillar reflexes, and the like. The morbid anatomical processes in the brain result in wasting of brain-substance, and they are chiefly located in the frontal regions and the neighbouring central convolutions. In view of the connexion which we ascertained to exist between sensations of one's body and consciousness of self, we may venture to colligate the two facts that these are the centres for the physiological correlates of the sensation of the body, and that exaltation of personality is frequent in the stage of morbid irritability. Mere exaltation, however, is not usually final, but passes into megalomania, and it is this growth of ideas of grandeur that concerns us. The following case of KRAEPELIN's may serve as an illustration.

"Oh God! Oh God!" says the patient, "I have so many ideas, one every second. I am going crazy—my poor head! I am the greatest genius that ever lived, and here I sit in a madhouse; I, poor dunce though I be, can do anything: let me go home to my poor wife. I am an officer—you have no right to detain me—I served in the war—I ought to be on the general staff, but I refused. I give my best ideas away; I cannot make use of all my patents; I invent a new one every quarter of an hour. Do you want to buy an equipage, doctor? I am the best connoisseur of horses; I will give you a magnificent pair from Trakehnen. I am eternally grateful to you; you are my preserver, my saviour. In me you are saving a genius to the world. Make me well and I will kiss your boots in gratitude. Oh God, help me, rescue me from this madhouse; crush these people that maltreat me. What a hideous building it is! The architect did not know his business. Look here, doctor, I will just show you how to rebuild it. The place is far too acoustic; it needs felt carpets. You must not let madmen do whatever they like; firm discipline is wanted. We will evacuate the isolation hospital altogether, and turn it into barracks for pioneers; the Neckar is close by. We will move the asylum up to the castle; I will rebuild it, I know all about its historical significance. We will make excavations there, like Schliemann's—ah, God! is Schliemann the name? I am losing my memory; I am crazy; I am mad; give me prussic acid to put myself out of pain with; I shall be glad to die. Let me go, have me handcuffed and taken home by a police commissioner, I cannot spend my whole life in an asylum. What will become of German science,

of the universities? I am a genius, you must see that I am; I speak French. Am I mad then? But it was a blessing I came into this madhouse. Shall I recite 'Faust' to you?"

There is an essential difference between such ideas of grandeur and the type that we met with in paranoia. They take the form of absolutely unmeasured assertions without any attempt at logical justification, they are constantly changing, and they are often mutually inconsistent. Indeed, they form a specific type from which it is possible to diagnose the presence of general paralysis.

A few years ago KORNFELD and BRIKELES* made a special investigation into the genesis of this type of megalomania, and gave a good digest of the various theories that have been advanced. They regard it as *merely* a phenomenon of abrogation or loss.† "The patient," they say, "cherishes all sorts of plans, is full of different projects, and is always expecting to make his fortune by prizes, lotteries, and the like; and every one of his designs seems to him to promise success because he lacks the power of appreciating the connexions of things properly. "I have never had an idea like this before," one hears such patients say. They overlook all the obstacles in the way of its realisation, because they do not see their importance. It is this derangement of the power of appraising the connexion of circumstances that lies at the root of their plan-making, but it is often so slight that it is not properly appreciated as morbid, though in other cases it would be an obvious sign of insanity even to a layman. Profound depression turns to gaiety as the patient feels assured of future fortune, and this provides the soil for a fine growth of megalomania, which thus depends simply on abrogation."

But KORNFELD and BRIKELES raise a solid objection against their own view when they say that according to it we ought to find megalomania in all cases of general paralysis, which we do not do. Consequently they have to discover some other condition of ideas of grandeur besides loss of critical power, and this they think they have found in "a certain vivacity of conation" which is said to precede these ideas. But I have no hesitation in contradicting them on this point. I have met with cases of paralytic megalomania where conation was anything but vivacious.

The most interesting point for us in their article is their attack

* *Allgemeine Zeitschrift f. Psychiatrie*, Bd. 49.
† *Ausfallserscheinung.—Tr.*

on the theory that ideas of grandeur are the result of " euphoria," as MEYNERT thinks, or of a form of mania which is said to occur in general paralysis. They rightly reply to this latter hypothesis that such mania is rare in this disease, whilst ideas of grandeur are common, or at any rate are found without mania.

But it still remains possible that a mood of morbid exaltation is the source of the ideas, for mania means far more than exaltation. This is MEYNERT'S view. You will remember the passage I quoted from him when I first began to speak of insane delusions. He supposes that a patient argues from his exalted frame of mind to the possession of riches and the like. No doubt his theory is open to attack in the form he gives it ; thus KORNFELD and BRIKELES express surprise at paralytic patients drawing so many inferences when their inferential powers are, on MEYNERT'S own showing, very weak. But they go too far. They suppose that, because ideas of grandeur are found in paralytic patients whose general mood is indifferent, the theory which refers them to exaltation cannot be tenable in any form. This argument is not cogent. It all depends what mood the patients were in when they first developed their grandiose notions. KORNFELD and BRIKELES themselves admit that a depressed frame of mind is " incompatible " with the formation of these notions, and that when there is mania it may provide a " suitable soil " for their growth. We are bound to ask, Why ?

We cannot find a satisfactory answer unless we assume that *affective conditions* are either the determining factors, or at any rate contributing factors. But in one respect the mode in which they operate in this case is different from what we found it to be in other kinds of delusions. It does not involve the same intensity that was implied when we spoke of morbid suspicion or melancholy or maniac excitement. It may be comparatively weak, as is clear from the facts that in general paralysis a transient wish may determine a grandiose idea, and that these ideas may, under certain circumstances, be provoked by suggestion.

The reason of this is that a second factor co-operates towards their formation, namely *derangement of the judgment-function itself*. When speaking of KRAEPELIN'S case I pointed out to you that these patients are guilty of gross contradictions in what they say. Thus a patient of mine used to call herself and believe herself to be lady of a manor, and yet in the same breath she would speak of a land-agent, under whom she had served on a manorial estate, as her superior. Connected with this is the

tactlessness of the general paralytic. He compromises himself and treats others in a tactless way because he has lost the power of adapting his behaviour to a complex situation. This is partly due to the relatively great derangement of his power of recalling recent events; but in the early stages of the disease his faulty judgment is also evidently dependent upon his *feeble power of attending*, for judgment and attention may be clearly seen to oscillate concomitantly at a time when reproductions are still effected with fair promptitude.

Our discussion of insane delusions has revealed two conditions under which mental acts are accompanied by a consciousness of the real validity of their thought contents. Acts thus accompanied are commonly called acts of thought, and if we can ascertain the factors of this sense of real validity we shall at the same time be determining the nature of the thinking-process.

What were the conditions in question?

(1) We found that the sense of real validity accompanies mental acts which, starting from the basis of facts represented or perceived, force themselves upon the subject.

(2) We had to recognise attention as an essential condition of thought.

You will remember that in morbid moods of abnormal intensity the representation (or perception) of certain facts is apt to give rise to interpretations of the facts such as have the same kind of affective tone as the prevailing mood, and that these interpretations obtrude themselves with abnormal force.

What part can attention play in these acts of thought? Evidently attention is directed upon what, for shortness' sake, we will call the represented facts. Is it concerned in the genesis of the consciousness that a determinate ideal complex growing out of the represented facts forcibly obtrudes itself on us? When we are aware that an ideal complex which occurs to us has grown from certain facts we are representing to ourselves whilst our attention was directed upon these represented facts, we regard ourselves as determined by the facts in these mental acts of ours—we take our thoughts to be forced upon us by the facts and to be dependent on the facts.

Thus we can put it that our sense of the real validity of thought contents means that our mental acts are accompanied by an awareness that they are exclusively dependent upon some ideally

represented facts which constitute the topic of our judgment at the time; and this awareness again never occurs except *when we are conscious that certain mental acts have taken place whilst our attention was directed upon ideally represented facts, in which we were wholly engrossed.* Whatever we think when our attention is thus directed and is exercising its inhibitive influence, we take to be valid of reality.

To prevent misunderstandings I should remark that it is not always, properly speaking, an act of thought when a mental act is accompanied by a feeling of coercion.* In patients suffering from coercive or imperative ideas we sometimes observe one idea following upon another independently of their will without any accompanying sense of real validity. This happens when their contents cannot be united by thought into a single whole. Acts of thought on our view involve coercion of a particular kind; mental acts must take place independently of our will, and at the same time we must be aware that they have taken place whilst our attention was directed upon certain determinate represented facts without being diverted therefrom. Then, it need hardly be said, the contents of our ideas can be united by thought into a single whole.

The difference between our view and the associationist doctrine that acts of judgment are merely a peculiarly intimate association of ideas is, I imagine, evident.

It may be worth while, perhaps, to point out shortly how judgments of identity and difference appear from our point of view. When in comparing we pass from an idea *A* to another idea *B*, we have an identity-feeling or a difference-feeling, and *we learn by experience to interpret these feelings and so to take them as meaning identity or difference.* These feelings include sensations which we term *inner sensations.*

It helps to confirm our view of the conditions upon which consciousness of real validity depends that, if it is as we think, we can understand at once how thoughts may actually be valid of reality.

An idea *a* may be followed in my mind at a given moment by an idea *b*; in another person (say in reproduction experiments) it may be followed by an idea *d*, or in my own mind at a different time by an idea *f*. This "irregularity" is due to variations in the general mass of contents of consciousness. How then can ideal complexes occur possessing real validity? The answer is

* Lipps, *Grundthatsachen des Seelenlebens.*

that, when attention is directed in the way described upon represented facts which form a topic for our judgments, *the conditions under which mental acts occur are rendered constant*, and the influence of variable factors is inhibited. The result of this constancy of conditions is that, given certain determinate facts as a topic, the subsequent sequence of mental acts will be identical in my own mind at different times and in other persons too.

We have thus determined the difference between simple *psychical necessity* and *necessity for thought*, and in indicating the genesis of the consciousness of real validity we have, of course, arrived at a statement of epistemological importance.

TWENTY-SECOND LECTURE

Idiocy and Imbecility

IN our preliminary subdivision of the pathology of intellectual functions we determined, as you will remember, to take ***congenital defective conditions*** separately. The more extreme forms of congenital deficiency are called Idiocy, the milder forms Imbecility or Feeble-mindedness. Some writers do, indeed, speak of Idiocy when profound mental deficiency has been acquired early in life as well as when it is congenital; but, as I shall show you in a moment, it is important for our purpose to keep these two kinds distinct, and it is only the congenital form that concerns us. Accordingly I shall use the term Idiocy in the sense of profound congenital deficiency, and similarly I mean by Imbecility primary imbecility, and not the secondary type which sometimes results from other mental disorders.

The different grades of idiocy correspond to different stages of lower mental development, and represent, as it were, a series of cross-sections through it. The investigation of them is valuable because it helps us to ascertain the successive stages of growing complexity of mental functions and to arrive at several determinations, both negative and positive, of the conditions on which these functions depend. No doubt we may get similar cross-sections by watching the growth of mental functions in children, but the investigation of idiocy has its advantages, partly because we get a clearer view of any given stage of development when it remains constant for a considerable time instead of being transitional, and partly because speech is brought to a certain degree of proficiency in idiots at a lower level of development than in children.

The mental pathology of idiocy is still in its infancy. The chief works on the subject are by EMMINGHAUS*, SOLLIER†, VOISIN‡, and HAMMARBERG§, but the description of the different

* *Die psychischen Störungen des Kindesalters.*
† *Psychologie de l'idiot et de l'imbecille.*
‡ *L'Idiotie.* § *Studier öfver idiotikens Klinik.*

grades is not detailed enough for our purpose. Some years ago I had occasion to examine a large number of female idiots, about a hundred in all. Let me explain the method and the results I reached.

The method varies according to the patient's proficiency in speech. Where the powers of speaking spontaneously and of comprehending what is said are developed, it does not differ from the ordinary psychiatrical method of ascertaining a patient's mental condition as employed in other kinds of disorder. You will find it described in works by RIEGER*, KRAEPELIN†, and SOMMER,‡—works, I may observe, that have a special and direct interest for psychology and for pedagogy, inasmuch as these methods of examination, if employed upon school children at different levels of development, might give us an exact picture of their mental status at successive stages of growth.

In a second class of idiots spontaneous speech is undeveloped, though they can to some extent understand what is said, and the method is modified correspondingly in an obvious way. Take, for example, the power of apprehending properties of objects. I tested it by showing my patients objects which agreed in all kinds of properties save one, and then requesting them to indicate the object which possessed that remaining property. Thus I gave them a test-tube in each hand, one containing cold and the other warm water, and then asked them to hand me the cold or the warm one, as it might be. Similarly I tested their power of perceiving differences of weight by putting a weight wrapped over with cotton-wadding in each hand, one weight being considerably heavier than the other; their power of perceiving differences of hardness by making them place their hands on balls of india-rubber, one of which was filled with plaster of Paris, whilst the other was empty; and similarly with their power of discriminating degrees of smoothness and so on.

In a third class of idiots both spontaneous speech and comprehension of speech are undeveloped, and I had to proceed with them in another manner. To test the power of discriminating colours I first laid before a patient a certain number of cards of divers colours, shaped like playing-cards, and then I gave her another card, similar to one of those before her, directing her by

* *Beschreibung der Intelligenzstörungen infolge von Hirnverletzung*, etc.

† *Psychologische Arbeiten*, Bd. 1, Heft 1.

‡ *Lehrbuch der psychopathologischen Untersuchungsmethoden.*

means I shall describe in a moment to lay it upon the card that looked like it. Similarly, when I was testing their discrimination of visual forms I made use of cards with different figures on them, I, II, III, IV, or with different letters, A, B, C, D. Of course I could not explain in words what I wanted when I handed them a card; if I had told them to find a similar card they would not have understood. But I managed to convey my meaning in another way. I first laid two cards before a patient, and then, showing her a third which resembled one of those two, I got her to take it and put it upon the one which it resembled by guiding her hand. By doing this a number of times I succeeded in letting her know what I wanted, although she could not understand the word "like."

Here are my notes on the mental condition of an idiot at a low level of development. They will serve to illustrate the procedure. I select a case which I have made use of in an article in the *Philosophische Studien**, because the patient's power of attention was pretty nearly equal to that of an imbecile patient of mine, and I want to compare the two.

B. is 18 years of age, very microcephalous. Before beginning my experiments I ascertained whether she was able to name colours. I found that she could not do so. When black and white cards were set before her and she was required to hand me the one or the other, she took the wrong one as often as the right. Next I habituated her to the method in the way I have just described, and after that her results were as follows:—

With cards "white" and "black" before her she made 1 error in the first 6 attempts; then she was right 12 times running. Next I showed her 7 cards—black, white, red, green, bright yellow, dark yellow, and blue; each card was given 3 times, not in direct succession, of course. In these 21 experiments she made 5 errors, 1 each with black, green, and bright yellow (confused with dark yellow); 2 with dark yellow (confused with bright yellow). With only 4 colours shown (red, green, white, black)—3 experiments again with each colour—she made only 1 error in the 12 trials, misplacing the red, and after that no error in another series of 12.

Then I tried again with the colours which she had confused worst—white, bright yellow, and dark yellow. This time the results were better. White right 9 times, bright yellow right

* Bd. 12.

8 times (once confused with dark yellow), dark yellow right 8 times (once confused with bright yellow).

Finally I gave her the whole 7 colours again. Result: 6 errors in 21 attempts—none with black, white, and blue; 2 with red; 1 with green; 1 with bright yellow; 2 with dark yellow. Thus, you see, her discrimination is correct when she has only 4 colours before her (1 error in 24), but with 7 colours the number of errors increases rapidly (5 in 21).

With cards having the letters A, B, C, D on them, 9 experiments with each card—19 errors in 36 attempts: 6 with A, 4 with B, 3 with C, and 6 with D. With A and B only—A right 6 times out of 9 (misplaced 3 times), B right 8 times (misplaced once). With C and D only—C right 6 times, D right 5 times (misplaced once).

Similarly with cards bearing the figures I, II, III, IV—3 experiments with each. The result was 2 errors with I, 2 with II, 1 with III, 3 with IV. Taking I and II only—12 errors in 54 attempts, 6 with each. Taking III and IV only—10 errors in 36, 5 with each.

In other connexions I found her condition to be as follows. First as to her ability to name things, she named many objects of everyday life correctly, and so far knew the names of others that she could, when required, select the objects from among a number of things and hand them to me, though she often confused similar objects. Thus she gave their right names to a lamp, a ball, a bag, and a book; but she confused bell with lamp, and (after it had been set ringing) with rattle, glass with beer, and mirror with window. I may mention the experiment with her mirror-image here. She did not recognise that it was only an image, and when asked who it was replied, "Sister." A sister of hers who resembles her is also in the asylum.

She could not name properties nearly so well as things. I told you that when I put a black and a white card before her and asked her to give me the one or the other, she was wrong every time. Given two keys she handed me the big or the small one correctly when I said, "Give me the big one," or, "Give me the small one"; but if I merely pointed at one of them and asked whether it was the big or the small one she could not tell.

The names of the qualities "hard" and "soft" are unknown to her. When I put two balls in her hands, one filled with plaster of Paris, and asked her to hand me the "hard" or the "soft" one, she could not do so. Nor did she understand if I asked for

the "heavy" or the "light" ball. Again, when I put two pieces of wood before her, similar in all respects except that one was "rough" and the other "smooth," she could not select the one I asked for, and was equally incapable when I gave her two test-tubes at once, filled with warm and cold water respectively.

Her sensibility for stimuli of taste and smell is feeble. When I asked her, "What does it taste like?" she sometimes merely repeated the question, but sometimes answered "nice," though the taste was really so bitter that her face was drawn with it—a large dose of Tinctura amara, for instance.

She heard a clock ticking at a considerable distance, but when asked what it was she replied, "It's a rattle."

Numbers are unknown to her. As to time-relations she is poorly oriented, at best; she cannot tell whether it is evening, morning, or noon. But she is well oriented in space, and can find her way about even in a fairly complicated building.

As regards memory, she knows people who are often about her. During the first few days after she was admitted into the asylum she used to ask for her mother, but after a time ceased to mention her.

The general results that we get from this examination are these:—

I. *Objects are given names at a lower level of development than properties.* I mentioned this fact and applied it when discussing WOLFF's re-examination of Voit. I should add that idiots of a low type give names to everything, familiar or unknown; it is only at a higher level that they refrain from judgment when asked the name of an object which they do not know. Probably the reason is that *at a low level of idiocy the feeling of difference has not acquired any meaning.*

II. The experiments on power of apprehending properties show (*a*) that *the first properties to be noticed are apparently those of taste and smell*, provided the sense-organs are normal, whilst *temperature-sensations are also apprehended at about the same level of development.*

(*b*) In vision, *colours are noticed at a lower level than forms.*

(*c*) With regard to the pairs heavy and light, hard and soft, smooth and rough, I found that *the qualities heavy and light are more readily noticed than hard and soft, and these more readily than smooth and rough.* At a stage where the apprehension of hardness and softness is very defective, that of heaviness and lightness is better developed. I discovered this by inducing

my patients, after I had explained my meaning in the same sort of way as in the card experiments, to exercise a slight pressure upon objects of very different degrees of hardness, and then to put side by side those which corresponded. I found that these manipulations resulted in many more errors than when I got them to lift objects of different weights with their hands and arrange them together. In an analogous way I found that the results with smooth and rough objects were poorer than with heavy and light objects. Another point is that they made fewer errors with heavy than with light objects, as is comprehensible enough.

III. *Spatial relations are apprehended at a lower level than temporal.* Idiots are often well oriented in space, but not at all in time, whereas the converse is never true.

IV. I discovered an interesting fact concerning the relation of efficiency of attention to general intellectual development. The results of the card experiments give us a sort of measure of the power of attending. Now similar experiments with an imbecile woman gave almost the same degree of attention as that of the idiot whose condition I have been quoting, from which it follows that *the degree of efficiency of attention is relatively independent of the level of general mental development.*

I will give you a short account of the mental condition of this imbecile. You will see the great difference between her and the idiot in mental development.

The patient is 26 years of age, has been several years in the asylum, was formerly a servant in a farmer's family, and had committed infanticide, but did not comprehend the gravity of her act. She is oriented in space, and as to time she can distinguish morning, noon, and evening. When asked what season of the year it was, she replied, " Not summer," it being winter at the time. She cannot tell how many days there are in a week, nor how many months in a year, but she can repeat the names of the days of the week. She cannot state her age.

She names things about her correctly. The following examples will show how far she is familiar with general concepts. She was shown a picture with dogs and boys in it. On being asked whether she saw an animal there she first said " No," then " Yes," adding " dog." " Isn't that an animal ? "—" Oh, yes." " Is it a dog or an animal ? "—" No, no, dog." " Is a dog an animal ? "—" Oh, yes." She can name properties rightly to a considerable extent. Thus she gives the colours red, green,

black, and white their proper names; and as to forms she is familiar with the concepts "round" and "angular." She also named the letters A, B, C, D rightly, and applied the terms warm and cold, heavy and light, hard and soft, correctly, though she was less accurate about soft and smooth, calling a leather table-cloth smooth without hesitation, but wavering about a very rough bed, and seeming generally less familiar with the notion of rough than with that of smooth. With keys of different sizes she calls one bigger or smaller correctly. She knows numbers, and reads them correctly to two places. She computes $8+2=10$; $10+2=12$; $12+2=14$; $14+2=16$; and says she can count further. When put in front of a mirror and asked who it is, she replies "I."

Yet, as I said, the experimental examination of her power of attending gives results no better than those I got from my idiot. In the card experiments with the numbers I, II, III, IV, she made, for instance, 5 errors in 12 attempts; with the letters A, B, C, D, 5 errors in the first 12 and 3 in the next 12. With the seven colours 3 errors in 21. So although on the whole this very feeble-minded patient is on a far higher intellectual level than the other, who did not know the names of properties or numbers and was not oriented in time at all, her power of attention is no greater.

V. I found further that *the development of speech is relatively independent of the development of the other mental powers*, for it often proved that idiots who were considerably more proficient at speaking were far less developed in other respects.

VI. Finally, there was one other interesting point that I observed occasionally. I found with a large number of my patients that if I put a test-tube of very hot water in their hands and asked them whether it was cold or hot, they replied, "Hot, cold." On the other hand, if I gave them two test-tubes, one in each hand, one containing hot and the other cold water, and bade them give me the cold one or the hot one as it might be, they reacted promptly and correctly. But if I gave them both test-tubes at once and pointed at one, asking whether it was cold or warm, they replied as before. The results were similar with stimuli of other senses.

When we ask our idiot under the conditions described, "Is it cold or hot?" there is a transition in her mind from the perception of, say, the hot glass to the idea hot, but the process of reproduction does not stop there—a further transition takes

place to the idea cold, which has also been excited by the question. Her answer " hot, cold," must be due to her stopping at reproduction without proceeding to form a judgment of identity. For this reason, by the by, I think it better to abandon the use of the term " identification " in connexion with the card experiments. I employed it in the article I have referred to, but the entire mental procedure is equally intelligible without the assumption of identifying judgments, and these idiots of mine were capable of performing the experiments, though they showed few signs of being able to form such judgments.

But when we say to an idiot under the conditions described, " Give me the hot one," transition takes place in her mind from the idea warm to perception of the warm test-tube, and from this to the motor idea. Starting in this way, there is no reason for a transition to a second perception cold, whereas in the former case there was a reason for transition to a second idea. The energy now flows into the motor region.

The most interesting point is this *transition from idea to perception*. The striking regularity of the correct reaction is not to be explained by any judgment of identity resulting in selection of the right perception. The transition to the right perception occurs with certainty in the absence of such a judgment, and this shows that transition takes place not only from idea to idea, and from percept to idea, but also from idea to perception—a fact that is, of course, of general psychological importance.

Passing on from idiocy we have next to consider *congenital imbecility*. I shall give you a sketch of its characteristics, indicating the divergencies that distinguish it from normal intellectual life. This is important for our purpose because we shall thus get a clearer idea of the higher intellectual functions. I will select one or two typical cases.

A patient of mine displayed an excellent memory and extensive knowledge, spoke German and Polish well, and had some acquaintance with French. Her mental weakness was best seen in her actions. One day she was given another patient's clothes to mend ; she tore the garment in pieces and made it up into clothes for her children. She did not exhibit any marked affective anomaly at the time. Another time she insisted on stopping in the bath-room against the doctor's general rule, of which she was aware, that patients were not to linger there. It was explained to her why the regulation had been made, that the doctor had

to reckon with the possibility of a patient's drowning herself there ; but even so she would not be convinced that her demand was unreasonable. She merely answered, " No one would do that." Here is an excerpt from a long composition of hers, which will help to illustrate her mental condition.

" Très bon gouverneur, frère et ami en Christ !

" Kindly read as introduction to more detailed statement the whole of *première épitre de saint Paul â Timothée, chapitre II.*, that will save me a more detailed explanation of many unnecessary or rather superfluous words, as you will find me and my circumstances in it, although it is true I have looked up this chapter more for the general application, yet I do not want to see myself excluded from the generality, as I have also taken the given order into account in the first verses. An insect in green costume, I çall it April maiden, yesterday announced to our Miss P., as I suppose, the advent of the month of rain ; she did not know anything more definite and I do not like to go on inquiring and asking questions if I can help myself according to my notions : the elegant form, the tender, modest, and yet regal-looking little creature gave her evident joy, she had in her own fashion, in childish fashion this guest, who sat on the outside of her window and certainly longed to be admitted into our dwelling, but as we unfortunately do not possess ' a key so long desired ' by me, we could not admit this angelic form—constantly admired afresh, until—finally—to my great joy also—it was announced—by itself. I tumbled—of course—not to the ground —but in haste to the window—to inspect with all speed this arrival who might fly off anywhere, attired in comfortable spring costume and in the latest fashion. The contrast between us two—is of course great, but I hope I have learned this much from it, for myself certainly, that I have to dress as elegantly, modestly, and at the same time prettily. Although the aide-de-camp* is considerably more slender than I am, yet his drooping wings showed that a further so-called prophet's mantle (representing that) may be called a practical garment and also quite worth imitating, if such happen to be in stock suiting me, shall be procured. A comfortable simple dishabille worn underneath meets all requirements ? !—Sea-green and I should be ' coleur de mucel,' the mantle might to my mind be a black water-dyplome†, or grey ? I think black meets all needs ? A pro-

* *Flügeladjutant*, with a play on words.—*Tr.*

† *Wasserdyplome*, a coined word of the patient's.

phet's hat with not too large a clasp, or, more accurately, with such a brim, would—as any rain-water, that might stream down and could flow on to my face, make an umbrella necessary, in case this hat were similarly covered with water-tight material, like the mantle. Trimming is a minor consideration. For I do not like to cover up my head without reason, could at most use a veil to protect my hair that blows wildly about and my weak eyes a little, it might be the same colour as the mantle, or white. White prevents the complexion from going brown '*experience teaches.*' Covering for hands and feet must not be lacking, Danish gloves wear well. Shoes must be comfortable, but not 'clumsy' (heavy—but light) cost a minor consideration! Not too high and lacing would be what I want. People do not like wearing stays, but I think they would be better for me. There are hygienic. . . .

"I am glad to know I have a brother in you, and believe that you may and can take upon you the duties incumbent on him?! Honour and bother, bother and honour must, as your experience will certainly have taught you, ever go together—in the case of should may and can."

She has scribbled her name several times on the margin of this document, and in reference to this observes: "The accompanying disfigurements are always occurring unintentionally in all my writings directed to you, my poor manuscript-reader much to be pitied, as I do, yet it all appears to be a fault of nature with me and change will be scarcely to be expected, or do you possess patience, which, as my husband once said to me, is stronger than pickled cabbage. Maybe, he does not like this to eat, although he showed little signs of it when I cooked it for us, I for my part have always enjoyed it and am not aware, that it had ever made me ill!"

Here we have *abnormal discursiveness of thought, disproportionate activity of fancy, weakness of the consciousness of reality, and vague concepts.*

I will now collate the most prominent symptoms of imbecility as found in different cases, and then analyse them as far as necessary and point out their connexions.

The mental condition of another of my patients, a man who has spent many years in fruitless legal study, is marked by his way of uttering all sorts of plans of life. One day he means to be a gentleman at large, the next a lecturer in law or philosophy, another time journalist or bookseller, and so on. Once he ex-

pressed his intention of becoming a private tutor. I pointed out to him that in that case he must learn languages or science. But he meant to be a tutor in general culture, as he might by becoming instructor to princes. In vain did I point out the improbability of his obtaining such a post and insist that at his age (31) he could not very well take up tutorial duties. He hoped in the end to be the recipient of some fine title as a token of gratitude, or to get some position at court. Yet he does not suffer from ideas of grandeur, but is simply very vain. A few days later different plans occur to him. He means to enter the army, for instance, despite the fact that he had been rejected because of his eyesight; the probability of being rejected a second time does not weigh with him at all. *Inability to distinguish the probable from the improbable* is a marked feature of his case, and in this connexion it is important to notice that when reflecting he keeps his muscles remarkably tense, and that when his attention is strained on anything the inner field of his consciousness becomes abnormally narrow. I should add that in ordinary conversation he would hardly seem feeble-minded to a layman, and that he is a good chess player.

WERNICKE * has recently published an admirable case of imbecility. The patient was by profession a teacher, and he kept plaguing a certain young lady, who was already engaged, with proposals of marriage, even going to her parents and insisting in so many words that "the fact of Miss Martha's engagement to Mr. Zimmer would not deter" him from marrying her. His proposal was emphatically rejected, whereupon he wrote to her: "Cher cœur! . . . Dans le fond des forêts votre image me suit, la lumière du jour, les ombres de la nuit, tout retrace à mes yeux vos charmes. . . . Un baiser pour la bouche avec l'embrassement." On WERNICKE's taking him to task he defended himself with the plea that it was a passage from Racine's *Phèdre*, a mere piece of poetic licence. This French love-letter drew a horrified response from the lady's parents, to which he answered: "Surely you might have trusted me not to enter into any relations with your girl without her parents' consent, or behind their back," and then indicated that he meant to marry her as soon as her present fiancé died. When called to account for his conduct by WERNICKE he could see nothing worse in it than obstinacy —"the best proof of love."

WERNICKE tested his power of defining concepts. He takes

* *Monatschrift f. Psychiatrie und Neurologie*, 1897.

civilisation to mean " culture of a people on definite principles," and culture to mean the same as civilisation. Civil rights he understands as the right " to go to the theatre or the public-house, to walk on the pavement, to travel during the holidays, and the like." Art means " dexterity which ranks as perfect in form," for instance, " painting, music, riding, i.e. the highest school of riding like Renz's circus, that is an art."

The characteristic features of this case are *tactlessness* (which we will analyse more precisely in a moment), *abnormally poor development of abstract conceptions*, as shown in other ways besides weakness at definition, and *inability to distinguish essential from unessential.*

Our next task is to analyse the symptoms of imbecility that we have found and to discover their inter-relations. They represent anomalies of the intellectual functions, in particular of judgment—anomalies dependent, too, on intellectual conditions, and consisting, not in momentary mental weakness, such as may result, for instance, from narrowing of consciousness in hysteria, but in permanent intellectual incapacity.

All writers on the subject, I believe, agree in emphasizing the abnormally poor development of abstract concepts among imbeciles. We must certainly not attribute this defect to inability to concentrate attention upon certain features of given objects and thus to abstract, for, as we have seen, attention may be considerably developed at the lowest levels of intellectual advancement. It must rather be due to *abnormal weakness at extracting the common element of complex data*, especially when the data themselves are of an abstract kind.

The imbecile's abnormal weakness at distinguishing essential from inessential is doubtless a *consequence* of his relative incapacity to frame abstract ideas.

As to his tactlessness, a review of the particular instances shows that, so far as it depends on intellectual conditions, it is due to incapacity properly to appreciate a complex state of affairs in judgment, and this incapacity is at least partly the result of *abnormal narrowness of the stream of consciousness.* This last condition is also one of the factors of the imbecile's weakness at distinguishing what is probable from what is not; he does not take into consideration the entire mass of real conditions of any event.

Another point about the imbecile is his *abnormally undeveloped consciousness of real validity.* He does not distinguish sufficiently

between pure fictions of his fancy and ideas or ideal complexes which conform to reality. This is the chief reason why he is so bad at distinguishing probable and improbable. In appraising degrees of probability he does not keep fast enough to real magnitudes, but purely subjective factors insinuate themselves unobserved among his data.

The rambling discursiveness sometimes found is due to abnormal *incapacity to reproduce a series of ideas of one definite character*. When dealing with Incoherence I pointed out the influence of leading ideas in bringing about such series; and probably it is mainly deficiency of general ideas that causes this deviation from the normal in imbeciles.

TWENTY-THIRD LECTURE

Division of the Pathology of Feeling—Points remaining for discussion—Feelings and processes of attention: (1) abnormal strength of feeling and fixation of ideas in cases of imperative ideas.

THE general plan we adopted at the beginning of this course was to start with the pathology of intellectual processes, in its significance for normal psychology, and then to investigate successively the pathology of feeling and of will. We have accomplished the first part of our task and may now turn to the second.

You will remember, however, that in my second lecture I introduced a preliminary investigation, based on pathological data, into the relations of feelings, emotions, and moods, being led to do so by the reflection that affective phenomena constantly influence the working of intellectual functions. Again, in our discussion of states of mental fog we learned how alterations of organic sensibility may influence the train of ideas, and as organic sensations enter into affective states, we thereby arrived at certain principles concerning the tendency of affective states to reproduce ideas. In our treatment of insane delusions, finally, we had to expound the bearing of feelings upon the process of judgment, and though we might be reproached with having thus included in the doctrine of intellectual processes what really belongs to the doctrine of feeling, we have this excuse, that more than simply affective processes were concerned, and that it was undesirable to sunder our account of the genesis of delusions.

What further lessons can we derive from pathological data? We can discover the bearing of feelings, firstly upon processes of attention, and secondly upon processes of will (though I prefer to leave this second point over until we come to the pathology of the will-functions); thirdly we shall arrive at some additional conclusions concerning the influence of feelings upon reproduction; and, lastly, the morbid states usually known as Moral Insanity will reveal an important condition of the occurrence of the moral

feelings, and will thus contribute to our knowledge of affective states themselves.

Let us first examine the connexion between feelings and attention, as shown by pathological data. In cases of morbidity there is often a marked deviation from the normal in the intensity of feeling, which may be abnormally high or abnormally low. The most important type of cases for us to examine is that in which the attention-process is affected by a rise in the intensity of the feelings which accompany certain ideas.

I shall begin, therefore, by discussing *the influence of an abnormal rise of feeling-intensity upon the attention-process*, and first of all with cases where the rise is moderate in degree, as it is where there are imperative ideas. I shall base my remarks upon a case of KRAFFT-EBING'S.*

The patient was a woman, 33 years of age, who had from her youth upwards been very impressionable and emotional, with a strong religious bent. "At 16 she had a severe attack of typhus. In her thirteenth year she went on a pilgrimage to Mariazell. During the journey, and indeed for some days before starting, she lived in a condition of extraordinary internal excitement and of great anxiety, which arose from a fear that tormented her lest 'she might forget some sin when confessing at Mariazell.' To calm her mind she endeavoured to impress her sins on her memory in a fixed order, and kept repeating them to herself. She went to confession in a very excited condition, for she 'had often heard what a terrible sin it is to forget anything at confession.' When she left the confessional her unrest had increased.

"The thought of having possibly forgotten something—a sin, it might be—would not leave her; she even fancied that she might have kept silence about it on purpose, though conscience and memory told her she had not forgotten anything. She felt how stupid and silly her fear really was, yet she could not get rid of it or escape from her terrible doubts. The following sketch of her melancholy condition is taken from several letters in which she lamented her sufferings.

"'I was in a state of extreme mental turmoil as I went to communion after my first confession. As the priest gave me the Host, the thought flashed through my head that I must bite into the Sacred Host. On closing my mouth I did actually think I had torn the Host with my teeth—so I did not dare open my lips for fear of putting some of it out. My inward turmoil

* *Allgemeine Zeitschrift f. Psychiatrie*, Bd. 35.

was made worse by the thought that it might be I had done it all on purpose, that I myself wanted to think these thoughts. I endured mortal terror of the most ghastly description. The awful notion of having committed sacrilege, on purpose too, occupied the whole of my thoughts—to drive it away and find comfort I analysed the whole action and kept brooding over it; but peace scarcely stayed with me a moment; the thought recurred, perhaps more forcibly—" you have committed sacrilege." Though I fully recognised the absurdity of my notions, they continued to persecute me obstinately till my fifteenth year, and sometimes they torment me even now. After every confession and communion this obstinate, horrible idea comes over me.' The following remark of hers is very significant: ' Other people as well may at times be persecuted by similar ideas after receiving the Sacrament, but I am sure their ideas do not cling to them so tenaciously, whilst as for poor me, they never let go of me, but pursue me as the Furies pursued Orestes. I feel that I am quite different from other people.' "

Our previous discussion of imperative ideas taught us that in the great majority of cases affective conditions may unhesitatingly be regarded as the fixating force, whilst occasionally the pathological data make it probable that strain-sensations cooperate. In the present case it is quite evident that an abnormally intense affective state of the primary kind causes abnormally strong fixation. There is no other factor possible. We cannot appeal to abnormally intense correlates of determinate ideas as the cause of the morbid fixation, for whilst the ideas fixed vary with the patient's situation, only those are fixed which possess an identical affective character. Moreover, in other cases we have seen intensity of fixation varying with intensity of affective states—and those not secondary, resulting from prolonged fixation, but primary, dependent on ideal contents.

You may say it is no news that feelings effect fixation of ideas. No doubt, but neither is it my purpose to erect a new hypothesis here, but merely to prove an old one as against its rivals by means of objective data. Of mere hypotheses there is no lack in many regions of psychology.

We have here a patient, from the outset " very impressionable and emotional," whose emotions cling to her with extraordinary " tenacity." Before her first communion she is attacked by the insistent notion " that she might forget some sin when confessing." Consequently she lives in " great anxiety "; that is,

her notion is conjoined with an emotion of anxiety. Such emotions take deeper root in the "very impressionable and emotional" than in normal people, and give rise to an emotional mood*. The patient herself speaks of the extraordinary "tenacity" of her emotions. Once allow that the fixation of her idea depends on her anxiety, and it becomes clear that the abnormal length of fixation is due to her impressionable and emotional nature. She cannot get rid of the thought because the emotion of anxiety has issued in an emotional *mood*.

After confession the insistent idea undergoes only slight modification at first, turning into the thought that "she may perhaps have forgotten something"; but then there comes the new notion, a natural result of the altered situation, of having kept silence *on purpose*. When the tormenting ideas failed to vanish after confession, it was clearly natural for her to ask whether a wicked purpose might not have been implicated, and in spite of her assured belief that this was not the case, the notion continued to cling to her thenceforward. This is not intelligible unless we assume that the emotion of anxiety which accompanied the idea of intentional silence also fixed that idea, and that subsequently the resulting mood had the same effect.

After confession the girl went to communion, and then there flashed through her head the thought that "she must bite into the sacred Host." Here again the variation of her idea with her situation is intelligible only on the assumption that its coercive character is due to the anxiety attaching to the new thought. After communion it undergoes similar modification and supplementation.

The intensity of fixation is abnormally great, corresponding to the intensity of her emotions; the ideas occupy the whole of her thoughts.

Finally, I need hardly point out that all her ideas have an identical primary emotional tone.

You will remember that when we were discussing imperative ideas we found a similar state of affairs in a large number of cases, and we may now take it as proven that *affective conditions fix ideas*.

But there is another conclusion to be drawn from cases like this one of KRAFFT-EBING'S. Not only does this rise in the intensity of feelings itself fix ideas or else intensify a pre-existing fixation, but it also *lengthens the period of fixation*, and makes an

* *Affektstimmung*, *v.* p. 172, note.—*Tr.*

idea recur with unusual *frequency*. I am not now saying that this is an invariable result of every rise in the intensity of feelings attaching to ideas, but it is a result of this particular rise. I want to point out that these results are unusually apparent in an emotionally susceptible person. You will at once see the significance of this for normal psychology, since as far as emotional susceptibility goes there are perfectly gradual transitions from the norm to cases like that which we have been considering.

In these susceptible natures, I was saying, a rise of feeling-intensity does not merely intensify, but also adds to the length of, fixation of certain ideas and conduces to their frequent recurrence. I have explained how it does so in the course of my presentment of KRAFFT-EBING'S case. If, or (we may now say) since, affective states fix ideas, the emotional *mood*, which in impressionable natures issues from feelings of unusual intensity, is bound to make the duration of fixation unusually long, as we found did happen with our patient.

More than this, her ideas recurred to her mind with unusual frequency. At times she succeeded in attaining a condition of comparative calm by purposely analysing her whole action and pondering over it, but peace stayed with her scarcely a moment; the thought soon returned, perhaps more forcibly, "you have committed sacrilege." Evidently this is due to temporary repression of the emotional mood by other psychical magnitudes, followed by its reasserting itself with renewed force. This is best explained by assuming that the mood itself is able to reproduce the tormenting idea—an assumption which we shall see by and by to be justifiable.

But we are not at the end of our conclusions yet. I have shown elsewhere* that this kind of rise in the intensity of feeling has an unfavourable influence upon the train of reproductive and relating processes which normally follow in a purposive order upon fixation of an idea. If that is so, it follows that *the most favourable condition for those processes is one in which the fixating feelings are of medium intensity*. The main point is that when their intensity is as great as in our present case, so that they and the idea fixated absorb the entire energy of consciousness for a considerable length of time, all processes of fixation, reproduction, and relating activity are bound to be retarded.

The damaging effect upon ideation which results from feelings

* *Philosophische Studien*, Bd. 12.

that pass a certain limit of intensity is still more evident in other cases, such as epileptic fits of anxiety, where feelings are at once more violent and more prolonged than in these cases of imperative ideas. As his anxiety grows more intense the field of regard of the epileptic's consciousness grows more narrow, until reproductions can scarcely find a way in at all, and no psychical energy is left for relating functions.

According to the common view the cause of all this is that the emotion of anxiety tends to ***inhibit*** ideation—after the manner of primary inhibition*, that is—and it is supposed that the emotions of ordinary life have the same effect. But it is just in these pathological cases that the insufficiency of this hypothesis is most evident, as I will show you.

An educated patient of mine who suffered from fits of anxiety, which were to be regarded as epileptic equivalents, used often to tell me that during these attacks his consciousness was entirely taken up with thinking of the dyspnœa he experienced. In consequence of the dyspnœa he felt an irresistible impulsion to run away, but it was the thought of it itself that stood in the foreground of consciousness.

Now methodological considerations forbid our assuming an actual process of inhibition (presupposing, as it does, a physiological correlate whose very existence seems most problematical to the majority of physiologists), so long as the facts admit of easy reduction to admitted physiological laws. But in this case they do so.

The perception of impeded respiration and the thought of means to remedy it absorb the man's entire psychical energy, so that none is left for other mental activities. What happens is that the abnormally intense affective state produces bodily concomitants of abnormal intensity, and so an abnormally massive complex of altered organic sensations and organic feelings forces itself upon consciousness, and psycho-physical energy is thus wholly and entirely absorbed.

To this must be added that some of the bodily concomitants of strong affective states are calculated to modify the bodily conditions of mental activity in an unfavourable way, the chief

* In the case of muscular activity many German physiologists divide processes of inhibition into two classes, according as they do or do not involve the activity of antagonistic muscles. In the latter case they speak of "primary inhibition." Some, however, refer all inhibition to the action of antagonistic muscles.—*Note from Author to Translator.*

instance being change in the distribution of blood in the brain, which accounts for the fact that abnormal affective states, if very violent, may actually produce loss of consciousness.

To sum up, the inhibitive influence of abnormally strong emotion upon the train of ideas in these cases is due to two causes : first, the great absorption of energy by abnormally intense organic sensations—the drainage of psycho-physical energy to another region, as one might say—and secondly, the change in the distribution of blood in the brain.

I think that these pathological cases have taught us the true interpretation of the statement that emotions tend to inhibit ideation, and have shown us the elements of truth and error respectively which that view of the facts contains.

The reverse side of inhibition is fixation. In the case of the man I mentioned, the idea of running away becomes fixed. This is due partly to abnormally strong feelings of anxiety, in which sensations of dyspnœa are particularly prominent, and is further promoted by a change in the blood-supply which impedes reproduction of any other ideas. The fixation here is of a different strength from that in our previous cases, being so intense that all other reproductions and functions of relating are stopped.

There are other features that I have not mentioned which mark the fixation in this case as altogether peculiar. The patient was a very intelligent man, and he asserted that at moments when his consciousness was taken up with feelings of anxiety and the thought of running away it was not this thought, but the feelings with the experience of dyspnœa, that were foremost, and further that sometimes the thought vanished entirely, whilst the feelings and dyspnœa gained still greater intensity and completely occupied consciousness.

This means that *when the fit of anxiety has a medium intensity a definite thought is fixed, not in the fixation point or (as I prefer to say) in the inner field of regard of consciousness, but in what is usually called the field of regard simply—what I call the outer field.* But on a further increase of anxiety these ideas which were thus fixed vanish even from the outer field, and the feeling of anxiety fixes nothing but itself. Something of the same kind occurs in many states of ecstasy.

But even when the increase in the strength of the fixating forces is not so abnormally great as actually to drive the ideas they have fixed into the background or right out of conscious-

ness, we may find it accompanied by a weakening of the fixation. This state of affairs is also instructive, and I shall deal with instances of it in some detail next time. When I have finished with them I shall collate all the results that we have arrived at, and have still to reach, concerning the connexion between affective states and attention.

TWENTY-FOURTH LECTURE

Abnormal strength of feeling and fixation of ideas in General Paralysis, and in Mania. Summary of conclusions—(2) Weakness of feeling and attention—Effects of Attention. Strain and Concentration—Feelings and Reproduction—Nature of Feeling: conditions of the Moral Feelings—Feelings and Ideas—Physiological correlates of Feeling-tones.

IT will be worth our while to examine in some detail those kinds of cases in which, despite increased intensity of feeling, the fixation of ideas is abnormally weak.

The first set of instances of the kind I am thinking of is furnished by cases of general paralysis, or "softening of the brain," in which feelings attain unusual strength. I have in a previous lecture given you a concrete sketch of the complex of mental symptoms found in this disease. Let me remind you that during its initial stage the most obvious intellectual anomaly consists in weakness of judgment, as instanced by tactless behaviour, and that with this there is comparatively soon associated a weakness of memory for very recent events.

Another symptom frequently shown by patients at the beginning of the disease is a tendency to recount their life-history to every comer in the minutest detail, without considering in the least whether their audience is interested. This tendency is an expression of very feeble judgment and *of incapacity to fix a thought by means of attention for any length of time and make it the guiding topic of an exposition.*

Besides weakness of judgment, of memory—particularly for recent events—and of power of concentration, there is generally deficiency of interest on the emotional side. But there are many cases in which this symptom is not found at first, and feelings are abnormally strong despite defective concentration and weakness of judgment and memory. The most interesting point for us is the presence of peculiarly intense feelings simultaneously with weakness of the power of concentration, for it might seem

to tell against the fixating influence of affective states which we have been asserting.

One of the causes why the fixation of ideas in general paralysis has neither great intensity nor long duration consists in a modification of the influence usually exerted by what I have elsewhere called *summation-centres of feelings**. By this term I mean to indicate ideas to which, during the course of life, a large number of affective states have been attached, so that the reproduction of these ideas arouses an echo of emotional experiences belonging to any and every period of one's past. The modification which takes place in general paralysis is usually evident quite early. A patient seems coarse in his behaviour, he offends against the first principles of morality in a way quite contrary to his former habits, and that even when proper conduct would not involve any great power of judgment, so that his behaviour cannot be attributed to weakness of judgment. This must mean that his summation-centres of feeling are thrown out of gear, and excitation of them no longer revives the affective masses which a life's experience has connected with them. This defect may be observed at a stage when memory of the more distant past seems still virtually intact, though judgment is distinctly defective and memory of recent events is weak; so that it appears as if *the first element to be damaged in memory for the more distant past is the power of reproducing these feelings.*

It is certainly due in part to this derangement that the fixating feelings pass through consciousness with unusual rapidity. At the same time increase of this rapidity and decrease of the effectiveness of the summation-centres are not proportionate; the former often surpasses the latter, and in some cases even appears distinctly when no such decrease is noticeable†, whilst there are cases of very transitory emotional excitement about trivial objects in which summation-centres would not be operative even in normal persons. How then are we to understand the increased rapidity and transitoriness of feelings when independent of any derangement of the function of summation-centres? It is certainly due in part to unusually rapid oblivescence of the ideas which give rise to an emotional excitement, the power of retaining present ideas being weak. But that is not the only factor concerned. The circumstances which provoke a profound emotional disturbance are often trivial, so that there is a certain

* *Philosophische Studien*, Bd. 12.

† Cf. SCHULE, *Klinische Psychiatrie*, pp. 364–5.

incongruity between it and them, and this cannot be explained except by assuming an instability of function on the part of the centres whose functioning gives rise to the bodily concomitants of feelings. This hypothesis also explains why general paralytics so often give us the impression that the feelings attaching to certain of their ideas are unusually strong.

In maniacal exaltation we again find the intensity of feelings heightened, but the length of fixation lessened. Here, however, the causes are different from those operative in general paralysis, and the effects upon ideation are also different. KRAEPELIN gives us an excellent sketch of his state. "Apprehension of external impressions," he writes, "and the train of ideas proceed with a certain facility; the patient's interest grows in every direction—he seems far more wide-awake, more acute, more efficient than he did. It is above all his skill in catching remote resemblances that often imposes upon his audience, because it renders him capable of witty turns and points, puns, startling (though on closer examination quite untenable) comparisons, and other efforts of fancy which depend upon intensified powers of observation and combination. Whatever he tries comes easy to him; he has forgotten what fatigue means, and displays a quickness, both physical and mental, that surprises even himself.

"Invariably, however, even in the least acute forms of this malady, there is an extraordinarily characteristic lack of unity in the course of ideation, an inability to follow out a given line of thought in a coherent manner or to elaborate and systematise given notions calmly and logically, an instability of interest, a sudden disconnected jumping from one object to another. No doubt such patients are fairly often able at a certain cost of effort to obliterate these phenomena temporarily and to regain control for a time over their unbridled thoughts; but even so a slight flight of ideas is always evident in their writings and particularly in the doggerel they are so fond of composing. Their predominant mood is exalted and merry, influenced by the feeling of heightened powers. They feel happy and gay, often in a rather exuberant manner."

Thus the feelings conjoined to their ideas are unusually strong, the basis being a mood of exaltation. On the ideational side the power of concentrating attention for any length of time is weak, and patients are unable to follow out a given line of thought coherently, though for a short time their ideas are very forcibly

fixed and the functions of reproduction and relating which follow on fixation are in good order. The result is that they have flashes of thought, but the objects of attention around which reproductions group themselves are in rapid change, so that their intellectual efforts remain incomplete and fragmentary.

Unlike general paralysis, where the fixation of ideas was weak and short despite the great intensity of feeling, maniacal exaltation shows an increase in the strength of fixation as well as in feeling-intensity. That is the cause of the apparent wittiness. Only the duration of fixation remains below the normal.

How are we to explain this conjunction of short duration with unusual strength of fixation? There is "a growth of interest in every direction." This means that an abnormal number of ideas possess an affective tone which enables them to compete for entry into the fixation-point of consciousness. That makes the matter intelligible, for as soon as the affective tone of an idea now in the fixation-point begins to lose strength the probability of a change of ideas is greater than normally.

Thus the growth of varied interests explains the unusually rapid change of ideas. But whence this growth of interest itself? It is undoubtedly a consequence of the exalted mood. We know that our mood at any moment helps to determine the affective character of our ideas. I mean to say that a given idea does not by itself possess a constant feeling-tone of definite intensity; but supposing, for instance, it is usually accompanied by a feeling of pleasure, its pleasure-tone will be weaker if the prevailing mood at the moment is one of depression than if it is one of exaltation. In this sense the mood of the moment helps to determine the feeling-tone of ideas. I need hardly show you in detail that even in normal life the circle of interest is subject to great variations of diameter; but in these morbid cases, where the variations are abnormally great, both their causes and their effects upon ideation are more evident.

Before passing on to speak of the effect that abnormal diminution of feeling-intensity has upon attention I will rapidly bring together the most important consequences for normal psychology that we have derived from these cases where the attention-process is affected by abnormal strength of feeling.

The first set of conclusions that we gained from our pathological data concerns the relation between intensity of feeling and the strength and kind of fixation of ideas. We found that—

(1) *Feelings fix ideas.* In an earlier lecture we saw that the same is probably true of strain-sensations.

(2) *The strength of fixation increases directly with the intensity of feeling until the latter reaches a certain point, after which a further rise of feeling-intensity brings a gradual fall of the strength of fixation to zero, till at last nothing is fixed but the affective state itself.* (Fits of anxiety in epilepsy.)

(3) As we pass up the scale of feeling-intensities we arrive at *a point at which ideas, instead of being fixed in the fixation-point, are fixed in the outer field of regard.* (Fits of anxiety in epilepsy again.)

As to the connexion between the intensity of fixating feelings and the duration of fixation, we found that—

(4) *Increased intensity of feeling* (within the limits in which it is accompanied by parallel increase in strength of fixation) *may, by giving rise to an emotional mood, lead to increased length of fixation.*

(5) *The connexion between intensity and duration of feelings on the one hand, and the ideas fixed on the other, is affected by the unusually strong competition of ideas which occurs in moods of exaltation.* You will remember that the casual series was *exalted mood—growth of interest—greater competition of ideas—shorter fixation of ideas.*

Lastly (6), we were able to show *the result of abrogation of the function of summation-centres of feelings* (in general paralysis) and to indicate what is probably a cause of such failure.

And by the way we also made *an objective analysis of the inhibitive effect of emotions.*

Unusually low feeling-intensity is to be found in idiocy, for example. My description of a female idiot in a previous lecture will have shown you what degree of power or efficiency attention reaches in this condition. If you recall the results of my experiments you will see that attention was active at a very low level of intelligence, despite RIBOT'S assertions to the contrary. This was due in part, at any rate, to the abnormal lack of competition of ideas, so that the same factor is operative as in mania, though in a negative way. We need not be surprised, therefore, that on comparing an idiot with an imbecile we found the efficiency of attention to be relatively independent of the level of general intelligence.

I will now say a word or two about low intensity of feeling in melancholia, or rather in patients of an abnormally melancholy mood. Such a person will himself complain that he takes no interest in anything. He pays no heed to what happens about him ; he cannot tell the names of people who are busy about him, and whom he often hears called by their names. External impressions often fail to make their mark because of the weakness of their attendant feelings. Even if they do become fixed, the reproducing and relating functions which would make them fruitful for thought generally remain dormant. If such a patient is shown a clock he takes far more than the normal number of seconds to tell the time from it. He often complains spontaneously of impairment of his power of reproducing ideas ; it is an ordinary thing to hear the complaint, " I can't think of anything now."

Let us now ask *how feelings manage to fix ideas in the fixation-point of consciousness*, a question that I cannot find mentioned in any of the books.

By taking *the organic sensations involved in feelings* as the operative factor we can see why the fixating feelings do not force themselves into the fixation-point, but allow ideas to enter it. *Organic sensations have naturally not got such a strong tendency to reproduce assimilating ideas as have ideas or percepts.* The same is probably true of strain-sensations.

There still remains to be mentioned an interesting point, first discovered by JANET, concerning the effect of fixation of ideas by attention. I will quote JANET'S own words. He was examining hysterical patients with the perimeter.

" At the centre of the apparatus, on the central point, I fasten a piece of paper on which, according to the case, some sentences or numbers are written very small. I place the subject in the proper position for measuring her visual field ; I close one of her eyes and request her not only to look at the centre, but also to read the paper, or mentally to perform some arithmetical operation with the numbers written on the paper. When her attention is well fixed on the work, which usually takes a little while, we draw the stick, on which a small white object is fastened, over the perimeter from the external side of the eye that is being examined, moving from the periphery to the centre. I stop a few moments at a point which I know to be within the subject's

field—40° for example. At this moment I interrupt the subject in her work and ask her if she has seen the signal advancing on the arc. According to her answer I begin the operation over again, under the same conditions, leaving the signal farther off, or bringing it nearer toward the centre. I succeed thus in determining the subject's visual field during the fixedness of her attention.

"With many normal men these conditions do not modify the visual field; with some they diminish it from 5° to even 10°; but with hystericals, and in general with patients whose attention is modified, this process brings with it surprising contractions. Margaret, whose visual field is 40°, has but 10°. Marie has a very variable visual field, but whatever it be, great or small, at the moment of the experiment, it always becomes contracted through attention; it passes from 80° to 20°, from 65° to 30°, from 30° to 15°. Justine has not usually, except when in a state of fixed ideas, any apparent contraction; in these new conditions she passes from 90° to 30°. . . . In a word, in a great number of cases, with these debilitated persons the effort of visual attention contracts in a very notable way their visual field."*

We may very well regard the narrowing of the field of vision produced by attention as due to narrowing of the field of consciousness. It would be interesting to have more precise experimental information as to the connexion between attention and breadth of the field of consciousness. I imagine that it is quite different when attention is accompanied by pronounced strain-sensations, and when these sensations are not prominent. And there are other reasons for keeping these two possibilities separate. Hence I prefer to speak of *strain of attention* in the former case and *concentration of attention* in the latter. Many effects, which are attributed to attention generally†, do not as a matter of fact follow upon mere concentration, but only upon strain; as, for instance, the lessened intensity of feelings attendant upon sensations. I shall deal more fully with this point in another place.

Now as to *the bearing of feelings upon reproduction of ideas*, so far as it can be ascertained from pathological data. Our dis-

* *L'état mental*, etc., pp. 76 ff.; *Mental State*, etc., pp. 71–2.

† Cp. A. LEHMANN, *Die körperlichen Aeusserungen psychischer Zustände*, I. pp. 62 ff., 140 ff.

cussion of states of mental fog in epilepsy contributed greatly to our understanding of this point, for we found that organic sensations are contributing causes influencing reproduction, and as they are elements of all affective states it follows that *affective states are contributing causes of reproduction. In many pathological cases, however, they do more than contribute—they are the cause of reproduction.* Take, for instance, a patient suffering from puerperal insanity with anxiety and incoherence, who in a fit of anxiety speaks like this :—

> " Oh, what have I committed ?
> What have I been and done ?
> Whom have I permitted to enter ?
> It is a feast, a fast to-day.
> Yes, yes, the boy is blind." *

The contents of this series of reproduced ideas are so entirely without connexion that the order of reproductions cannot be attributed to them, even with the help of feelings. It is inexplicable unless the feelings of anxiety are themselves the cause of it.

But *the operative elements of these feelings must be organic sensations.* For, first of all, methodological considerations compel us to take this view, since otherwise we should be introducing an entirely novel principle in the explanation of reproduction of ideas, in the form of affective elements, additional to the generally accepted principle that ideas are reproduced by other ideas or by sensations, i.e. by intellectual elements. And, secondly, no other hypothesis explains why reproduction by affective states is comparatively rare. There is no difficulty about that if feelings are only operative in virtue of their organic sensations, for these are usually the least prominent sensations in consciousness. Even if they are not exactly less intense as a rule, at any rate they do not enter so often into the fixation-point, and they rarely stand out from among other mental contents. But if feelings themselves are factors of reproduction, it is impossible to understand why they play such a humble part in the complex of causes of reproduction, considering the multiplicity of their qualities.

I might argue also that this is the only view which harmonizes with the hypothesis I mean to expound concerning the physiological correlates of feeling. But I do not insist on this point, since it cannot at present have more than a purely hypothetical

* This rough translation is in the metre of the original doggerel.—*Tr.*

value. I must, however, mention the ***inhibitive action*** of feelings, referring you to what I said in the last lecture.

Turning now to another matter, I mentioned previously that ***moral insanity*** shows us one of the conditions of the moral feelings. Moral insanity is a morbid state of which very divergent views have been taken; you will find a good digest of them in an article of ERDMANN MÜLLER'S*. It involves a certain defectiveness on the affective side of the character, and more particularly in the moral feelings. Although certain intellectual anomalies are present, we may say at once and without hesitation that intellectual is far less marked than emotional derangement. The recognition of the moral feelings as complex magnitudes which cannot be deranged in isolation has led most recent writers on the subject to accentuate the intellectual disturbances in a degree which the facts do not warrant, the disorder being regarded as the result of intellectual imbecility. But there is a whole number of cases in which the ethical defect is undeniably not due to stunted intelligence, a case of BLEULER'S† being an instance in point. I have myself observed ethical defect in many patients whose intellectual functions could not possibly be responsible for it.

On the other hand, I think I may venture to say that the emotional derangement goes further than merely the moral feelings, for I find that ***the intensity of all reproduced affective states is diminished in these cases***, a fact which not only makes the abnormality of moral feelings intelligible, but also explains (as is clear from our previous arguments) why certain intellectual derangements are bound to result. It calls our attention to the truth that ***the growth of moral feelings is principally dependent upon the intensity of reproduced affective states.***

In bringing my remarks on feeling to a conclusion I should like to add a few words on the relation of feelings to sensations, and on the physiological correlates of feeling-tones.

The old dispute whether sensations and ideas are prior to feelings or feelings prior to them has now been pretty generally abandoned, and most thinkers regard them as equally primary. The principal point now at issue is whether feelings are so independent of sensations and ideas as to occur in isolation.

* *Archiv f. Psychiatrie*, Bd. 31.

† *Vierteljahrsschrift f. gerichtliche Medizin*, 1893.

. Various arguments have been brought forward in support of the hypothesis of feelings without sensations. Firstly, that all pain is homogeneous. ALFRED LEHMANN* has tried to refute this assumption experimentally. He compared the pains that arise from pressure, heat, and cold. By adequate stimulation of pressure-, heat-, and cold-spots respectively—inadequate stimulation cannot be made intense enough to produce pain without diffusion—he succeeded in getting three corresponding kinds of pain which were distinctly different. Indeed, the differences were so distinct that it was possible to discriminate the particular pain correctly with closed eyes.

The homogeneous character of pain resulting from very intense stimulation, as reported by many writers, is ascribed by LEHMANN to destruction of sensory spots. But he need not have made this assumption. For even if very intense pains do appear homogeneous, that is no disproof of the hypothesis that feelings only occur in the company of sensory elements, since the pain may, owing to its enormously greater intensity, silence the sensation, so that a difference may really be present and yet difficult to notice.

A second argument for independent feelings is found in the alleged fact that sensation and feeling of pain are separated by a measurable interval of time. For instance, if you touch a hot stove, you notice the contact before the pain. LEHMANN tested this argument by determining the reaction-times to punctiform pressure- and warmth-stimuli. He found them to be ·2 seconds and .9 seconds respectively. This means that pressure-stimuli are sensed considerably sooner than warmth-stimuli, and so the fact that pain does not arise simultaneously with contact-sensations is explicable without our assuming its independence of sensations.

A third argument is provided by certain pathological cases in which there is anæsthesia, insensibility to contact, though sensitiveness to pain remains intact. SCHIFF observed that when the white matter of the spinal cord is cut through, gentle contact does not give rise to sensation, whereas susceptibility to painful impressions is actually heightened; and from this it has been inferred that pain occurs without sensory elements. But it has been shown by WUNDT and FUNKE that the connexion between the grey matter and conduction of pain is best explained by the fact that the grey matter offers greater

* *Die Hauptgesetze des menschlichen Gefühlslebens*, pp. 36 ff.

resistance to conduction and is also able to accumulate excitations. Hence it does not react till stimulation has been frequently repeated, but then it does so suddenly with violent and prolonged excitation. Now so long as the conduction-tracts are uninjured, weak stimulation will result in a nervous current which passes up the white strands only, and being weak does not cause pain, whilst, if the stimulation is strong, the current passes partly through the grey matter and does produce pain, because of its own intensity, and because the grey matter has the power of summating stimuli. But supposing the white matter is cut through, weak stimuli produce no effect upon the central organ, because they cannot traverse the grey matter, though strong stimuli cause pain as before. Thus, you see, the loss of susceptibility to contact in these cases does not mean that no pressure stimuli are sensed at all, but that the particular touch stimuli are too weak to cause sensations under the given circumstances. Stronger stimulation would be bound to cause both pressure-sensations and a feeling of pain.

Many writers think they can often by introspection detect feelings in separation from the ideas to which they originally belonged. Let me mention a single instance which seems to tell most strongly in favour of such isolated feelings, and I will show you by its means what appears to me a more accurate interpretation.

You are aware that when one of two simultaneous ideas has a strong feeling-tone, this tone may be " transferred " to the other idea. When this other idea is next reproduced, it will appear in possession of this feeling-tone, and it often seems as if the first idea which possessed it were not simultaneously reproduced and indeed cannot be reproduced except with great effort. An example is hardly necessary.

Now if we want to explain this transference of feeling, and refuse to assume that the first idea is dimly conscious, we have two possible interpretations to appeal to, both of which presuppose that a feeling is separable from an idea to which it has once belonged. We may suppose, firstly, that the second idea tends to stimulate reproduction of the first, and that this stimulus, though insufficient to raise the idea itself above the threshold of consciousness, does succeed in making its accompanying feeling conscious. If this is so, the feeling does win a certain independence of the idea it originally belonged to; the physiological correlates of idea and feeling remain connected as

before, but the concomitant psychical phenomena occur in separation.

Or, secondly, we may suppose that the organic sensations involved in the feeling enter into association with the second idea, and this association afterwards leads to reproduction of these sensations with the feeling-tones. Once more there will be separation of feeling from the first idea, but—and I want to lay special stress on this point—the separation will not be between an idea and the primary feeling attendant on it, but between the idea and a secondary feeling. In my opinion the inferences so commonly drawn from the alleged occurrence of feelings without their proper ideas hold only of primary feelings, whilst the premise that such a separation does occur is true at most only of secondary feelings.

Now as to the physiological correlate of feeling-tone. Biological considerations support the theory that pleasure "is concomitant with an increase," unpleasure "with an abatement of vital functions" * (SPINOZA, HAMILTON, BAIN). It is true that certain intellectualistic philosophers have brought the theory into disrepute by insisting that pleasure is produced by the idea of what is beneficial and unpleasure by the idea of the injurious. But we can very well assume that pleasure and unpleasure go with sensations that are due to stimuli respectively beneficial and injurious to the organism, and at the same time deny that these feelings depend upon *ideas* of the beneficial and injurious.

Looking more closely into this hypothesis, which, as I said, is recommended by biological considerations, we find that the attempt to make it more precise results in three possibilities. Pleasure may be connected either with intake of potential energy, or with transformation of potential into kinetic energy, or with a definite ratio of kinetic to potential.

DUMONT† adopts the first of these alternatives, but LEHMANN has rightly objected that there cannot possibly be an increase of potential energy in the nerve centres when a stimulus of moderate strength produces a pleasantly-toned sensation, but there is rather a process of liberation of energy.

* The phraseology comes from BAIN (*Senses and Intellect*, 1868, p. 283), as quoted in LEHMANN, *op. cit.* p. 153: "States of pleasure are concomitant with an increase, and states of pain with an abatement, of some, or all, of the vital functions." I have throughout translated "Unlust" (as distinct from "Schmerz") by "unpleasure," a word which at any rate ought to exist.—*Tr.*

† *Théorie scientifique de la sensibilité.*

LEHMANN himself takes the third view. But certainly it is a little precarious to assume that the ratio of kinetic to potential energy has a psychical correlate, and that we are conscious of the state of nutrition of our brain.*

As to the second view, which alone remains, that pleasure is connected with transformation of potential energy into kinetic, both DUMONT and LEHMANN object that at bottom it involves the remarkable assumption that pleasure is due to "diminution of energy." I cannot see that it involves anything of the kind, though I do not think it complete as it stands. I should prefer to state it thus: Pleasure results from transformation of potential into kinetic energy, so long as the transformation falls short of the point at which the processes of decomposition in the central nerve centres become disturbed, but when this point is passed unpleasure results. A fact which I discovered experimentally serves to verify the hypothesis that strong stimulation disturbs the processes of decomposition in living matter.

Fig. 8

In investigating these processes it is best to experiment with the muscle of a curarised frog. The circumstances are admittedly simplest when the length of the muscle is kept constant whilst the tension is increased, i.e. under "isometric" conditions. Now in revising certain experiments which I made some years ago for another purpose, and some of which I have published, I found that the curves resulting from supra-maximal stimulation show a distinct difference from all other curves. Fig. 8 represents tension-curves starting from one point and corresponding to single twitches in response to stimuli of different intensities.

You will see that the curve resulting from supra-maximal stimulation is markedly differentiated from the rest by an earlier and more rapid fall, and by the shorter duration of the twitch. This peculiar modification of the processes of decomposition which results from supra-maximal stimulation fits in with the hypothesis that we made just now in the attempt to give

* cf. WUNDT, *Physiologische Psychologie*, 4th ed., I. p. 599.

a more precise form to the biological theory of the correlates of feeling-tones.

Moreover, this hypothesis of ours explains why the feeling-tone of sensation is dependent on one's general mood. Differences of mood, we must suppose, involve alterations in the blood-supply of the brain, and it is evident that the intensity of stimulation needed to modify the decomposition-processes in the way supposed will also differ correspondingly.

But let me insist once more that these feeling-tones, whose physiological correlates we have been trying to determine, are given psychically only in fusion-phenomena. We must admit a great number of qualitatively different feelings of pleasure and unpleasure, and they include different complexes of organic sensations as well as feeling-tones.

TWENTY-FIFTH LECTURE

Mental Pathology of Processes of Will—The effect upon them of (I) morbid changes of Affectivity: viz. (*a*) of heightened feeling-intensity; the motor results of anxiety, anger, and morbid gaiety; general review; (*b*) of abnormally weak feelings; apathy; aboulia, and its kinds; unpleasure as facilitating and inhibiting; (II) morbid changes of Ideation; (III) derangements of Judgment.

I THINK my best way of treating the pathology of will is to take successively the effects produced upon acts of will by morbid changes of affective states, ideas, and the judgment-function. In this way we shall get a clear view of the true relation of feeling, ideation, and judgment to processes of will.

I shall start with morbid changes of affectivity, dealing first of all with abnormal increase, and then with abnormal decrease in the intensity of feeling.

Let us begin by considering the result that *morbid anxiety* has upon processes of will. The effect differs according to the intensity of the feeling. Take first the mildly anxious frame of mind that may be observed in melancholic persons. A man "who has previously been companionable and cheerful becomes unsociable and reticent; he develops a quiet, serious, gloomy character. With this comes a certain inertness and lack of energy. Not infrequently one may notice quite early a certain dispiritedness and proneness to anxiety. He seeks consolation on every side, and so runs to much reading, e.g. in prayer-books and bibles. He is easily disheartened and attacked by a feeling of inward need, and has to find relief in tears. If his discouragement grows, it takes the form of self-depreciation and self-reproach, which he justifies by his past life, his position towards his family, or his morbid physical debility."* Later on distinct and pronounced feelings of anxiety are developed.

Morbid anxiety, you see, goes here with *lack of energy*. Now in this kind of morbid mood the irritability of the cortex, and

* From ERLENMEYER'S *Seelenstörungen*.

therefore of the motor centres also, is lessened, owing to diminished blood-supply to the brain.

But it is quite another matter *when the anxiety is very intense,* as it is again in melancholia and in fits of anxiety with epileptic equivalents. As a melancholic's anxiety increases, motor restlessness (jactation) sets in. If he is out of bed he runs to and fro in an entirely aimless fashion. When his anxiety becomes extremely intense, he may end in acts of violence, usually on himself, as is only too often the case in melancholia, but occasionally on other people—violence that is perfectly senseless.

There is nothing to account for these violent acts but just the anxiety itself. In this condition there is no other psychical magnitude present possessing sufficiently abnormal intensity to produce such an abnormally strong motor effect. *Here we cannot help taking the affective state as the cause of the motor result.* Idea-forces are absolutely out of the question when a man's behaviour is without end or aim, as is the case not only in these acts of violence, but also in the restless jactation of these patients.

And even when their actions are purposive, they cannot be attributed to idea-forces. The function of the cortex being weakened by the decrease of blood-supply involved in anxiety, we cannot regard either motor (kinæsthetic) ideas or any other ideas as the cause of the motor effect. Nothing remains open to us except to attribute it to the organic sensations involved in the unusually intense bodily concomitants of anxiety. The physiological correlates of these sensations are of course enormously intense and have to discharge into the motor regions. Hence a motor result of abnormal violence. At the same time the specific character of the movement does depend on motor-ideas.

Evidently we have before us an interference-phenomenon. The lessened blood-supply accompanying the emotion results in functional weakness of the centres for motor-ideas; the organic sensation-forces involved in the emotion encourage the same centres to abnormal activity. Probably it is partly due to the discharge of these forces into the motor regions that the blood-supply to the motor-centres is altered; but that does not alter the fact that we are dealing with a case of interference.

In morbid anxiety, then, the functional weakness of the cortical motor centres, which results from decrease in the supply of blood to the brain, is more than compensated for by the energy

of the organic sensations involved in the emotion. In *morbid anger*, on the other hand, this happens only in the first stage, and there is a second stage in which the two factors strengthen one another. The necessity for distinguishing these two stages is very evident in the anger of mania and epilepsy—a first stage in which the blood-flow to the brain is diminished, and a second in which it is increased. In explaining the acts of anger belonging to the first stage we must assume the same kind of interference-action as in the motor discharges of anxiety, whilst in the second stage the strengthened function of the motor centres is added to the energy of the organic sensations.

Senseless acts, and acts whose purpose does not become conscious till the moment of action, are far more common in morbid anger than in morbid anxiety. Let me quote a vivid description of an outbreak of anger in mania.

"The patient suddenly lets fly at all about him, striking, kicking, throttling any one he can catch, throwing about everything he can lay hands on, smashing and slashing whatever comes near him, tearing his clothes, screaming, howling, and roaring. His eyes glitter and roll. He exhibits all the symptoms of vasomotor congestion that occur in frenzy. His visage is red and swollen, his cheeks are hot, his eyes start out from his face, the conjunctiva is inflamed, the heart-beat is strong, his pulse beats 100 to 120 times a minute. His carotid is bulging and beating, his veins are swollen, he dribbles at the mouth."

I ought to mention that the way in which normal anger affects action is admirably exemplified in certain aphasic patients. When we were speaking of aphasia we saw that in one set of cases where there is motor derangement of the speech-function the only sounds that can still be uttered are those which constitute an expression of emotion. You will remember the interesting way in which many anatomically-minded pathologists explain this fact. It would certainly be a mistake to regard it as due merely to the increase in the supply of blood to the brain which accompanies the emotion (anger, as a rule); we must also take into account the energy of the affective organic sensations involved.

Another interesting class of cases deserves special mention, where morbid feelings of unpleasure impel to action. I am thinking of cases where a person has fallen into the habit of taking some narcotic, like morphia, opium, or cocaine, and is suddenly deprived of the poison. The deprivation occasions

unpleasant feelings of unusual intensity, particularly sensations of oppression and feelings of anxiety. In this state, as you know, a man will make every conceivable effort to get the narcotic he wants, his firmest resolves being powerless in the end against his feelings. Beyond doubt it is the unpleasant feelings resulting from deprivation that are the impelling force, though I would not deny that feelings of pleasure attendant on the idea of actions which aim at getting the narcotic may contribute to the result in some small degree.

Instances of the effect upon action of *morbid primary feelings of pleasure* may be found in maniacal exaltation, but I may say at once that these feelings do not always act in the same way. It will be convenient to begin with vivid sketches of different degrees of this kind of maniacal excitement.

" The patient is never quiet. He has scarcely sat down but he must be off again, must go for a walk, or call on a friend, or do some useless shopping. Anyhow, he never keeps quiet ; he is no sooner come but he is gone again. He rushes to the theatre, to a concert, to a gambling-house ; he gushes about cigars, and has hardly bought them before he throws them away again."*

When the maniacal excitement is more intense we get a picture like this : " The patient whistles, sings, mimics animals, claps her hands or clatters on the bed-rails for hours at a time, springs up and tumbles back again. She jumps about, dances, tears the nurses round with her, throws off the bedclothes, rends and smashes things, heaves about the furniture or anything else she can get hold of. *Her talk is one continuous flow, but shows no trace of any conscious motive for all this motor restlessness.*" † Indeed, this restlessness is not due to any ideas whatever, but depends partly on the abnormally exalted mood, and partly, and probably chiefly, upon heightened irritability of the motor centres‡.

You will observe that we cannot ascribe nearly so much influence upon action to pleasant as to unpleasant feelings, differing herein from a great number of psychologists. To this point I shall return shortly.

Now as to the effect of *morbidly weak feelings*. Such a state is generally called *apathy*, when regarded as an affective anomaly, and *aboulia* when we are referring to the anomaly in processes

* From NEUMANN, *Lehrbuch der Psychiatrie*

† From ROLLER.

‡ KRAEPELIN, *Psychiatrie*, 5th ed., pp. 597 ff.

of will. I will begin by citing an old case of ESQUIROL'S, where the patient spoke of his condition in the following terms :—

" I know what I must do, and should like to be able to do it," he said. " Do you but give me the strength I lack and you will have cured me. . . . I know that I *ought* to do this or that, and that I *can* do it. Your counsel is excellent ; I should like to follow your advice, I am sure it would be a good thing. But make me able to will, with the will that determines and performs. It is certain I have only got will not to will, for I am quite sensible. I know what I must do, but the power deserts me when I ought to act. . . . *My inactivity is due to my feelings being too weak to influence my will.*"

Here weakness or loss of will-processes is the result of low feeling-intensity. But cases of an entirely different character are often confounded with the aboulia which depends on these conditions. Compare the accounts of the matter given by RIBOT* and JANET. In my opinion a large proportion of the cases of hysterical aboulia differ *toto cœlo* from the type I have just described.

Hysterical aboulia may be due, firstly, to *conflicting ideas*, which are accompanied by strong feelings ; and, secondly, we must certainly use the term aboulia when inability to move a limb follows on anæsthesia of that limb, in which case it is due to derangements in the centres for motor sensations, and not to emotional conditions at all.

So we must distinguish *three types of aboulia, the first arising from low intensity of feelings ; the second, loss or weakness of will owing to conflicting ideas—both of these types depend on emotional conditions ; and the third the result of kinæsthetic conditions.* Only the first of the three concerns us here. As we have seen, abnormally low intensity of the feelings attendant on ideas of action results in weakness or abolition of will-processes.

So far we have been discussing the effects of abnormal increase or decrease of feeling-intensity upon the motor results of processes of will. Before we proceed, let us tabulate the conclusions which we have drawn, or may draw, for normal psychology from the data reviewed.

I. *Affective states may provide the cause of the motor result of processes of will.*

This follows firstly from cases where nothing but abnormally intense feelings can be made to account for the abnormal vio-

* *Diseases of Will.*

lence of movement, as e.g. in the morbid states of anxiety found in epilepsy and melancholia. It follows secondly from the fact that the growth of intensity in affective states and in motor results corresponds, as we saw in morbid states of anxiety, in melancholic and epileptic fits of anger, and in the state of motor restlessness in morphinism; whilst an abnormal decrease in affective intensity—apathy, as it is called—is accompanied by corresponding decrease, or even abolition, of the motor result of processes of will. And, thirdly, there is the connexion between instability of mood and processes of will in hysteria, increase or decrease of affective intensity involving corresponding increase or decrease (and even abolition) of the motor results.

Moreover, the view that motor ideas are the sole cause of the motor results is refuted by cases where movements take place without having been previously represented in idea, the action not coming to consciousness until it is executed, when the very intensity of the effect prevents us from attributing it to unnoticed motor ideas.

II. *The operative elements of affective states are primarily organic sensations; but when the affective states involve an increase in the flow of blood to the brain, these sensations are seconded by the resultant heightening of the excitability of the motor centres.*

We saw that in anxiety organic sensations are the sole factor, the corresponding physiological energy discharging into the motor regions of the cortex; whereas in anger the heightened irritability of the motor centres, which results from the emotion, constitutes an additional factor. This, by the way, is probably what happens in the motor restlessness of morphinism, where pleasure accompanies the ideas of such actions as may serve to the getting of morphia.

III. *The feelings that provide the cause of the motor result of will-processes are by no means always feelings of pleasure; the strongest movements are always due to the action of unpleasant feelings, pleasure not entering in at all.*

In normal mental life when unpleasant feelings seem to be the cause of the motor result, our "pleasure-theorisers" always have one way of escape open—they can say that unpleasure is only apparently the cause. For, they may argue, the action which is started removes or lessens the unpleasure, or at any rate the subject calculates that it will do so—anyhow, the idea of it is accompanied by feelings of pleasure. If the intensities of motor result and of unpleasure correspond, that is because contrast to

unpleasure intensifies the pleasure attendant upon the idea of executing the action, and it is always this pleasant feeling that really brings about the motor result.

In our pathological cases this escape is cut off. Take the movements that occur in cases of anxiety, for instance. If this view were right, a feeling of pleasure connected with the idea of the movements must grow side by side with the emotion of anxiety, and it must increase in strength *pari passu* with the anxiety, since the motor results do so. But an easy reflection will convince us that such a feeling of pleasure must lose strength as the anxiety gains strength, for we found that as this happens all other psychical magnitudes that are trying to assert themselves are forced back and finally out of consciousness, no psychophysical energy remaining available for them. Thus the supposed feelings of pleasure must be gradually repressed, and consequently (on this view) the motor results must gradually grow weaker—a conclusion which is in direct contradiction to the facts. I have said nothing of the unlikely character of the hypothesis that a feeling of pleasure possessing the required intensity might grow side by side with these morbid feelings of anxiety, which are themselves moderately intense; and the only other point I will emphasise is that such an interpretation is impossible in all cases where an action is not represented in idea before its execution.

Our " pleasure-theorisers " have probably been misled by the fact that unpleasant feelings often exercise an inhibitive influence on the motor results of will-processes, and they have not been able to understand how their influence can sometimes be inhibitive and at other times facilitating. I admit the fact of " inhibition," but I shall show you shortly in the light of pathological data what the character of unpleasant feelings must be when they have respectively the one or the other effect.

IV. Meanwhile we have still to draw a fourth consequence. If we compare the kind of conduct observed in morbid states of anxiety or anger with our normal conduct we immediately miss that *provisional inhibition of the tendency to movement* which is made possible by reflection on the various possibilities of action before us, and which is sometimes actually the aim of such reflection. Thus the abrogation of one constituent of normal processes of will in these morbid cases calls our attention to its presence in normal processes, and in this way pathological data assist our analysis of a normal phenomenon.

I was saying a moment ago that unpleasant feelings may have either of two effects upon the motor result of voluntary action. They may facilitate or they may inhibit. It is obviously of the greatest importance for the psychology of will to ascertain the conditions under which they have each kind of effect. We can get clearness on the matter from cases of what is called Paradoxy of Will.

MENDE* reports the case of a nurse, "a gentle, peaceable woman as a rule," who, "during her mistress's absence, felt an irresistible impulse to cut the throat of the little child she was nursing with a knife that she saw lying on the table, and this though she was devoted to the child. She ran into the kitchen with the knife, threw it away, and begged the cook to keep near her, because she had "wicked thoughts." The cook refused and left the house to fetch her mistress, whereupon the irresistible inclination to murder the child came on again, and she would probably have done it had not her mistress fortunately returned in the nick of time. Even during the night, when her mistress and her mistress's sister were sleeping in the same room with her, the murderous impulse came over her again with such force that she began to cry aloud in order to waken the sister. Later on she admitted with many tears what had passed in her mind and what awful torture these impulses had been to her."

You will find a number of cases of the kind quoted by KNOP†, one being that of a landowner who set fire to his own homestead, though the idea of this action was accompanied by strong feelings of unpleasure and no pleasure at all.

It seems to us abnormal in these cases that actions should be performed, or at any rate a strong tendency to their performance should be present, though the idea of them involves wholly unpleasant feelings. Thus we arrive at the statement that ***normally when unpleasure attaches to the idea of an action it has an inhibitive effect upon the execution of the action.***

We can differentiate the mechanism of this inhibitive influence of unpleasure from that of its facilitating influence with greater precision. To illustrate the circumstances I will select an example of MEYNERT'S‡.

If a child seeing a flame grasps at it and burns himself, this experience may serve to make him shun fire in future. The sight of the flame led him to grasp at it. This movement results

* *Handbuch der gerichtlichen Medizin*, Teil 6.
† *Die Paradoxie des Willens.* ‡ *Psychiatrie*, pp. 147 ff.

in a sensation of pain. The stimulus that causes pain gives rise to a reflex movement of withdrawing the hand. MEYNERT insists that in this way an association is formed between the visual idea and the motor idea of grasping which forces itself on consciousness with special strength because the sensation is combined with pain, and that a second association is formed between this and the idea of the antagonistic movement, so that any subsequent visual perception of a flame gives rise not only to a grasping movement but also to an antagonistic movement. MEYNERT pays no further attention to reproduced feelings of unpleasure; but they contribute largely to inhibition of the grasping movement, since the energy corresponding to the organic sensations involved in them discharges into those centres which function in the execution of the antagonistic movement.

Feelings of unpleasure follow on the motor idea of grasping. The energy corresponding to their organic sensations discharges into the regions of the correlates of antagonistic movements *just as in a reflex process the energy which has become kinetic in the sensory centres discharges into motor centres. The feelings of unpleasure have here an inhibitive effect on the movements to which they are attached just because a transition takes place from the ideas of these movements to the feelings and not from the feelings to the ideas, and so the energy corresponding to their organic sensations does not discharge into the region of the correlates of these ideas, but into the region of the correlates of other motor ideas.*

Conversely we find that feelings of unpleasure facilitate movements when the transition is from them to the ideas of these movements.

On the relation of acts of will to ideas and judgments I need not say much. The bearing of ideas upon acts of will is most distinct in cases of extreme hysteria, where reproduction is biased by the affective anomaly and abnormal actions consequently occur, because certain ideas which are combined with powerful feeling-masses do not take any part in the conflict of motives. Many cases of criminal behaviour fall into this class. Under such circumstances there may be a strong contrast between a person's particular action and his real character. In this condition a person is deprived of free determination of his will.

The influence of ideas upon acts of will, then, is seen to lie in this, that they are the causes which arouse affective states that play a decisive part in the conflict of motives.

It is of course *ideas of actions* that are most closely connected with acts of will. If these ideas assume the character of imperative or coercive ideas, they may easily result in "*imperative actions*," such as occurred in our cases of paradoxy of will. You may find a large number of instances in CRAMER'S book, to which I referred when lecturing on hallucinations. Of course, such cases frequently have a criminal bearing.

The bearing of *judgment* upon complex acts of will is particularly clear in cases where weakness of judgment prevents the subject from properly appreciating what is or is not in his power —what he can do. In such cases we see that judgment participates in complex acts of will, and not only judgment, but *consciousness of self* as well.

Again, in imbecility and in the later stages of general paralysis we find weakness of judgment expressing itself in inability to appreciate correctly what means are suitable to the attainment of a given end, so that this appreciation of means must be normally involved in all more complex acts of will.

These are the principal points of the pathology of will that bear upon our purpose. I am now at the end of this course of lectures, which have, I hope, shown you that mental pathology is able in important points to advance our knowledge more particularly of higher mental processes, and to offer psychological assistance towards the solution of several epistemological problems.

THE END

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